

Access DB# 164845

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: George Goudreau Examiner #: 69631 Date: 8-26-05
Art Unit: 1763 Phone Number: 272-1434 Serial Number: 10-807,139
Mail Box and Bldg/Room Location: Ren 7A21 Results Format Preferred: (circle) PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Cntr

AUG 26 2005

Pat. & T.M. Office

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Searcher: <u>A. Fullin</u>	Type of Search	Vendors and cost where applicable
Searcher Phone #: _____	NA Sequence (#) _____	STN <input checked="" type="checkbox"/> _____
Searcher Location: _____	AA Sequence (#) _____	Dialog _____
Date Searcher Picked Up: _____	Structure (#) _____	Questel/Orbit _____
Date Completed: <u>9/15/05</u>	Bibliographic <input checked="" type="checkbox"/> _____	Dr. Link _____
Searcher Prep & Review Time: <u>40</u>	Litigation _____	Lexis/Nexis _____
Clerical Prep Time: _____	Fulltext _____	Sequence Systems _____
Online Time: <u>74</u>	Patent Family _____	WWW/Internet _____
	Other _____	Other (specify) _____



STIC Search Report

EIC 1700

STIC Database Tracking Number: 164045

TO: George A Goudreau

Location: 7A21

Art Unit : 1763

September 16, 2005

Case Serial Number: 10/807139

From: Kathleen Fuller

Location: EIC 1700

REMSEN 4B28

Phone: 571/272-2505

Kathleen.Fuller@uspto.gov

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

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FILE COVERS 1907 - 15 Sep 2005 VOL 143 ISS 12

FILE LAST UPDATED: 14 Sep 2005 (20050914/ED)

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=> D QUE L33

L2 10 SEA FILE=REGISTRY ABB=ON (106392-12-5/BI OR 12033-89-5/BI OR 121-44-8/BI OR 1310-58-3/BI OR 1336-21-6/BI OR 691397-13-4/BI OR 7440-21-3/BI OR 75-50-3/BI OR 75-59-2/BI OR 7631-86-9/BI)

L3 1 SEA FILE=REGISTRY ABB=ON SILICA/CN

L4 2 SEA FILE=REGISTRY ABB=ON L2 AND PMS/CI

L6 709369 SEA FILE=HCAPLUS ABB=ON L3 OR SILICA OR SIO2 OR SILICON ?OXIDE

L11 2454 SEA FILE=HCAPLUS ABB=ON L6 AND NONION?(2A)SURFACT?

L12 44 SEA FILE=HCAPLUS ABB=ON L11 AND (CMP OR CHEM?(1A)MECH?(1A)POLI SH?)

L13 21 SEA FILE=HCAPLUS ABB=ON L12 AND SLURR?

L15 65429 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND (EO OR ETHYLENE OXIDE)) OR NONION?(2A)SURFACT?

L16 375 SEA FILE=HCAPLUS ABB=ON L15 AND ABRASIV?

L17 54 SEA FILE=HCAPLUS ABB=ON L16 AND SLURR?

L18 24 SEA FILE=HCAPLUS ABB=ON L17 AND (CMP OR CHEM?(1A)MECH?(1A)POLI SH?)

L19 25030 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND (EO OR ETHYLENE OXIDE))

L20 1607 SEA FILE=HCAPLUS ABB=ON L6 AND L19

L21 14 SEA FILE=HCAPLUS ABB=ON L20 AND (CMP OR CHEM?(1A)MECH?(1A)POLI SH?)

L22 39 SEA FILE=HCAPLUS ABB=ON L20 AND SLURR?

L23 7 SEA FILE=HCAPLUS ABB=ON L22 AND POLISH?

L24 45 SEA FILE=HCAPLUS ABB=ON L13 OR L18 OR L21 OR L23

L25 4 SEA FILE=REGISTRY ABB=ON L2 AND 1-2/N

L26 49123 SEA FILE=HCAPLUS ABB=ON L25

L27 193 SEA FILE=HCAPLUS ABB=ON (L20 OR L16) AND (L26 OR AMINE#/IT OR (2ND OR SECOND OR TWO) (2A)SURFACT?)

L28 15 SEA FILE=HCAPLUS ABB=ON L27 AND SLURR?

L29 9 SEA FILE=HCAPLUS ABB=ON L28 AND (CMP OR POLISH?)

L30 49 SEA FILE=HCAPLUS ABB=ON L24 OR L29

L31 49 SEA FILE=HCAPLUS ABB=ON L30 AND (POLISH? OR CMP)

L32 15 SEA FILE=HCAPLUS ABB=ON L31 AND (COMPOSITION? OR COMPNS)

L33 21 SEA FILE=HCAPLUS ABB=ON L29 OR L32

=> FILE WPIX

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=> D QUE L34

L2 10 SEA FILE=REGISTRY ABB=ON (106392-12-5/BI OR 12033-89-5/BI OR
 121-44-8/BI OR 1310-58-3/BI OR 1336-21-6/BI OR 691397-13-4/BI
 OR 7440-21-3/BI OR 75-50-3/BI OR 75-59-2/BI OR 7631-86-9/BI)
L3 1 SEA FILE=REGISTRY ABB=ON SILICA/CN
L4 2 SEA FILE=REGISTRY ABB=ON L2 AND PMS/CI
L6 709369 SEA FILE=HCAPLUS ABB=ON L3 OR SILICA OR SIO2 OR SILICON
 ?OXIDE
L11 2454 SEA FILE=HCAPLUS ABB=ON L6 AND NONION? (2A) SURFACT?
L12 44 SEA FILE=HCAPLUS ABB=ON L11 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
 SH?)
L13 21 SEA FILE=HCAPLUS ABB=ON L12 AND SLURR?
L15 65429 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
 (EO OR ETHYLENE OXIDE)) OR NONION? (2A) SURFACT?
L16 375 SEA FILE=HCAPLUS ABB=ON L15 AND ABRASIV?
L17 54 SEA FILE=HCAPLUS ABB=ON L16 AND SLURR?
L18 24 SEA FILE=HCAPLUS ABB=ON L17 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
 SH?)
L19 25030 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
 (EO OR ETHYLENE OXIDE))
L20 1607 SEA FILE=HCAPLUS ABB=ON L6 AND L19
L21 14 SEA FILE=HCAPLUS ABB=ON L20 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
 SH?)
L22 39 SEA FILE=HCAPLUS ABB=ON L20 AND SLURR?
L23 7 SEA FILE=HCAPLUS ABB=ON L22 AND POLISH?
L24 45 SEA FILE=HCAPLUS ABB=ON L13 OR L18 OR L21 OR L23
L25 4 SEA FILE=REGISTRY ABB=ON L2 AND 1-2/N
L26 49123 SEA FILE=HCAPLUS ABB=ON L25

L27 193 SEA FILE=HCAPLUS ABB=ON (L20 OR L16) AND (L26 OR AMINE#/IT OR
(2ND OR SECOND OR TWO) (2A) SURFACT?)
L28 15 SEA FILE=HCAPLUS ABB=ON L27 AND SLURR?
L29 9 SEA FILE=HCAPLUS ABB=ON L28 AND (CMP OR POLISH?)
L30 49 SEA FILE=HCAPLUS ABB=ON L24 OR L29
L31 49 SEA FILE=HCAPLUS ABB=ON L30 AND (POLISH? OR CMP)
L32 15 SEA FILE=HCAPLUS ABB=ON L31 AND (COMPOSITION? OR COMPNS)
L34 14 SEA FILE=WPIX ABB=ON L29 OR L32

=> FILE COMPENDEX

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<<< SOME LITTLE CHANGES IN TEXT OF CLASSIFICATION AS OF JUNE 13, 2005
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=> D QUE L35

L2 10 SEA FILE=REGISTRY ABB=ON (106392-12-5/BI OR 12033-89-5/BI OR
121-44-8/BI OR 1310-58-3/BI OR 1336-21-6/BI OR 691397-13-4/BI
OR 7440-21-3/BI OR 75-50-3/BI OR 75-59-2/BI OR 7631-86-9/BI)
L3 1 SEA FILE=REGISTRY ABB=ON SILICA/CN
L4 2 SEA FILE=REGISTRY ABB=ON L2 AND PMS/CI
L6 709369 SEA FILE=HCAPLUS ABB=ON L3 OR SILICA OR SIO2 OR SILICON
?OXIDE
L11 2454 SEA FILE=HCAPLUS ABB=ON L6 AND NONION? (2A) SURFACT?
L12 44 SEA FILE=HCAPLUS ABB=ON L11 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
SH?)
L13 21 SEA FILE=HCAPLUS ABB=ON L12 AND SLURR?
L15 65429 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
(EO OR ETHYLENE OXIDE)) OR NONION? (2A) SURFACT?
L16 375 SEA FILE=HCAPLUS ABB=ON L15 AND ABRASIV?
L17 54 SEA FILE=HCAPLUS ABB=ON L16 AND SLURR?
L18 24 SEA FILE=HCAPLUS ABB=ON L17 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
SH?)
L19 25030 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
(EO OR ETHYLENE OXIDE))
L20 1607 SEA FILE=HCAPLUS ABB=ON L6 AND L19
L21 14 SEA FILE=HCAPLUS ABB=ON L20 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
SH?)
L22 39 SEA FILE=HCAPLUS ABB=ON L20 AND SLURR?
L23 7 SEA FILE=HCAPLUS ABB=ON L22 AND POLISH?
L24 45 SEA FILE=HCAPLUS ABB=ON L13 OR L18 OR L21 OR L23
L25 4 SEA FILE=REGISTRY ABB=ON L2 AND 1-2/N
L26 49123 SEA FILE=HCAPLUS ABB=ON L25
L27 193 SEA FILE=HCAPLUS ABB=ON (L20 OR L16) AND (L26 OR AMINE#/IT OR
(2ND OR SECOND OR TWO) (2A) SURFACT?)
L28 15 SEA FILE=HCAPLUS ABB=ON L27 AND SLURR?
L29 9 SEA FILE=HCAPLUS ABB=ON L28 AND (CMP OR POLISH?)
L30 49 SEA FILE=HCAPLUS ABB=ON L24 OR L29
L31 49 SEA FILE=HCAPLUS ABB=ON L30 AND (POLISH? OR CMP)
L32 15 SEA FILE=HCAPLUS ABB=ON L31 AND (COMPOSITION? OR COMPNS)

L35 1 SEA FILE=COMPENDEX ABB=ON L29 OR L32

=> FILE JICST

FILE 'JICST-EPLUS' ENTERED AT 17:14:35 ON 15 SEP 2005

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L2 10 SEA FILE=REGISTRY ABB=ON (106392-12-5/BI OR 12033-89-5/BI OR
 121-44-8/BI OR 1310-58-3/BI OR 1336-21-6/BI OR 691397-13-4/BI
 OR 7440-21-3/BI OR 75-50-3/BI OR 75-59-2/BI OR 7631-86-9/BI)
L3 1 SEA FILE=REGISTRY ABB=ON SILICA/CN
L4 2 SEA FILE=REGISTRY ABB=ON L2 AND PMS/CI
L6 709369 SEA FILE=HCAPLUS ABB=ON L3 OR SILICA OR SIO2 OR SILICON
 ?OXIDE
L11 2454 SEA FILE=HCAPLUS ABB=ON L6 AND NONION?(2A)SURFACT?
L12 44 SEA FILE=HCAPLUS ABB=ON L11 AND (CMP OR CHEM?(1A)MECH?(1A)POLI
 SH?)
L13 21 SEA FILE=HCAPLUS ABB=ON L12 AND SLURR?
L15 65429 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
 (EO OR ETHYLENE OXIDE)) OR NONION?(2A)SURFACT?
L16 375 SEA FILE=HCAPLUS ABB=ON L15 AND ABRASIV?
L17 54 SEA FILE=HCAPLUS ABB=ON L16 AND SLURR?
L18 24 SEA FILE=HCAPLUS ABB=ON L17 AND (CMP OR CHEM?(1A)MECH?(1A)POLI
 SH?)
L19 25030 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
 (EO OR ETHYLENE OXIDE))
L20 1607 SEA FILE=HCAPLUS ABB=ON L6 AND L19
L21 14 SEA FILE=HCAPLUS ABB=ON L20 AND (CMP OR CHEM?(1A)MECH?(1A)POLI
 SH?)
L22 39 SEA FILE=HCAPLUS ABB=ON L20 AND SLURR?
L23 7 SEA FILE=HCAPLUS ABB=ON L22 AND POLISH?
L24 45 SEA FILE=HCAPLUS ABB=ON L13 OR L18 OR L21 OR L23
L25 4 SEA FILE=REGISTRY ABB=ON L2 AND 1-2/N
L26 49123 SEA FILE=HCAPLUS ABB=ON L25
L27 193 SEA FILE=HCAPLUS ABB=ON (L20 OR L16) AND (L26 OR AMINE#/IT OR
 (2ND OR SECOND OR TWO) (2A)SURFACT?)
L28 15 SEA FILE=HCAPLUS ABB=ON L27 AND SLURR?
L29 9 SEA FILE=HCAPLUS ABB=ON L28 AND (CMP OR POLISH?)
L30 49 SEA FILE=HCAPLUS ABB=ON L24 OR L29
L31 49 SEA FILE=HCAPLUS ABB=ON L30 AND (POLISH? OR CMP)
L32 15 SEA FILE=HCAPLUS ABB=ON L31 AND (COMPOSITION? OR COMPNS)
L36 0 SEA FILE=JICST-EPLUS ABB=ON L29 OR L32

=> FILE INSPEC

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=> D QUE L37

L2 10 SEA FILE=REGISTRY ABB=ON (106392-12-5/BI OR 12033-89-5/BI OR
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OR 7440-21-3/BI OR 75-50-3/BI OR 75-59-2/BI OR 7631-86-9/BI)
L3 1 SEA FILE=REGISTRY ABB=ON SILICA/CN
L4 2 SEA FILE=REGISTRY ABB=ON L2 AND PMS/CI
L6 709369 SEA FILE=HCAPLUS ABB=ON L3 OR SILICA OR SIO2 OR SILICON
?OXIDE
L11 2454 SEA FILE=HCAPLUS ABB=ON L6 AND NONION? (2A) SURFACT?
L12 44 SEA FILE=HCAPLUS ABB=ON L11 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
SH?)
L13 21 SEA FILE=HCAPLUS ABB=ON L12 AND SLURR?
L15 65429 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
(EO OR ETHYLENE OXIDE)) OR NONION? (2A) SURFACT?
L16 375 SEA FILE=HCAPLUS ABB=ON L15 AND ABRASIV?
L17 54 SEA FILE=HCAPLUS ABB=ON L16 AND SLURR?
L18 24 SEA FILE=HCAPLUS ABB=ON L17 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
SH?)
L19 25030 SEA FILE=HCAPLUS ABB=ON L4 OR ((PROPYLENE OXIDE OR PO) AND
(EO OR ETHYLENE OXIDE))
L20 1607 SEA FILE=HCAPLUS ABB=ON L6 AND L19
L21 14 SEA FILE=HCAPLUS ABB=ON L20 AND (CMP OR CHEM? (1A) MECH? (1A) POLI
SH?)
L22 39 SEA FILE=HCAPLUS ABB=ON L20 AND SLURR?
L23 7 SEA FILE=HCAPLUS ABB=ON L22 AND POLISH?
L24 45 SEA FILE=HCAPLUS ABB=ON L13 OR L18 OR L21 OR L23
L25 4 SEA FILE=REGISTRY ABB=ON L2 AND 1-2/N
L26 49123 SEA FILE=HCAPLUS ABB=ON L25
L27 193 SEA FILE=HCAPLUS ABB=ON (L20 OR L16) AND (L26 OR AMINE#/IT OR
(2ND OR SECOND OR TWO) (2A) SURFACT?)
L28 15 SEA FILE=HCAPLUS ABB=ON L27 AND SLURR?
L29 9 SEA FILE=HCAPLUS ABB=ON L28 AND (CMP OR POLISH?)
L30 49 SEA FILE=HCAPLUS ABB=ON L24 OR L29
L31 49 SEA FILE=HCAPLUS ABB=ON L30 AND (POLISH? OR CMP)
L32 15 SEA FILE=HCAPLUS ABB=ON L31 AND (COMPOSITION? OR COMPNS)
L37 1 SEA FILE=INSPEC ABB=ON L29 OR L32

=> DUP REM L33 L34 L35 L37

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PROCESSING COMPLETED FOR L34
PROCESSING COMPLETED FOR L35
PROCESSING COMPLETED FOR L37

L39 34 DUP REM L33 L34 L35 L37 (3 DUPLICATES REMOVED)

=>

=> D L39 ALL 1-34 HITSTR

L39 ANSWER 1 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1

AN 2005:527317 HCAPLUS

DN 143:69836

ED Entered STN: 19 Jun 2005

TI **Slurry compositions and CMP methods using**
the same

IN Choi, Jaekwang; Lee, Jaedong; Hong, Chang-Ki

PA S. Korea

SO U.S. Pat. Appl. Publ., 17 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM H01L021-76

ICS H01L021-302; H01L021-461

INCL 438690000

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 48, 66

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005130428	A1	20050616	US 2004-807139	20040324
	JP 2005175498	A2	20050630	JP 2004-359039	20041210
PRAI	KR 2003-90551	A	20031212		
	US 2004-807139	A	20040324		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2005130428	ICM	H01L021-76
	ICS	H01L021-302; H01L021-461
	INCL	438690000
US 2005130428	NCL	438/690.000
JP 2005175498	FTERM	3C058/AA07; 3C058/CB01; 3C058/CB10; 3C058/DA02; 3C058/DA12; 3C058/DA17

AB The exemplary embodiments of the present invention providing new **slurry compns.** suitable for use in processes involving the **chemical mech. polishing (CMP)** of a polysilicon layer. The **slurry compns.** include one or more **nonionic polymeric surfactants** that will selectively form a passivation layer on an exposed polysilicon surface to suppress the polysilicon removal rate relative to Si oxide and Si nitride and improve the planarity of the **polished** substrate. Exemplary surfactants include alkyl and aryl alcs. of **ethylene oxide (EO)** and **propylene oxide (PO)** block copolymers and may be present in the **slurry compns.** in an amount of up to .apprx.5%, although much smaller concns. may be effective. Other **slurry** additives may include viscosity modifiers, pH modifiers, dispersion agents, chelating agents, and amine or imine surfactants suitable for modifying the relative removal rates of Si nitride and Si oxide.

ST surfactant block copolymer **CMP** polysilicon semiconductor device fabrication

IT Polymers, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(block; **slurry compns.** and **CMP** methods to*applicant*

suppress polysilicon removal)

IT **Polishing**
(chemical-mech.; slurry compns.
and CMP methods to suppress polysilicon removal)

IT **pH**
(modifiers; slurry compns. and CMP
methods to suppress polysilicon removal)

IT **Surfactants**
(nonionic; slurry compns. and CMP
methods to suppress polysilicon removal)

IT **Abrasives**
Chelating agents
Dispersing agents
Passivation
Semiconductor device fabrication
Slurries
Viscosity
(slurry compns. and CMP methods to
suppress polysilicon removal)

IT **Amines, uses**
Imines
RL: TEM (Technical or engineered material use); USES (Uses)
(slurry compns. and CMP methods to
suppress polysilicon removal)

IT 7440-21-3, Polysilicon, processes 7631-86-9, Silica,
processes 12033-89-5, Silicon nitride, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); TEM (Technical or engineered material use); PROC (Process); USES
(Uses)
(slurry compns. and CMP methods to
suppress polysilicon removal)

IT 75-50-3, Trimethylamine, uses 75-59-2,
Tetramethylammonium hydroxide 121-44-8, Triethylamine, uses
1310-58-3, Potassium hydroxide (K(OH)), uses 1336-21-6, Ammonium
hydroxide 106392-12-5, Ethylene oxide-
propylene oxide block copolymer 106392-12-5D,
Ethylene oxide-propylene oxide block
copolymer, monononylphenyl and mono-octylphenyl ethers 691397-13-4
, Ethylene oxide-propylene oxide
triblock copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(slurry compns. and CMP methods to
suppress polysilicon removal)

IT 7631-86-9, Silica, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical
process); TEM (Technical or engineered material use); PROC (Process); USES
(Uses)
(slurry compns. and CMP methods to
suppress polysilicon removal)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

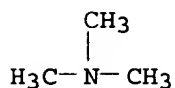
IT 75-50-3, Trimethylamine, uses 75-59-2,
Tetramethylammonium hydroxide 121-44-8, Triethylamine, uses
1336-21-6, Ammonium hydroxide 106392-12-5,
Ethylene oxide-propylene oxide block

copolymer 106392-12-5D, Ethylene oxide-propylene oxide block copolymer, monononylphenyl and monooctylphenyl ethers 691397-13-4, Ethylene oxide-propylene oxide triblock copolymer

RL: TEM (Technical or engineered material use); USES (Uses)
(slurry compns. and CMP methods to suppress polysilicon removal)

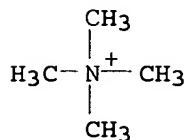
RN 75-50-3 HCAPLUS

CN Methanamine, N,N-dimethyl- (9CI) (CA INDEX NAME)



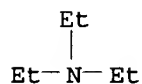
RN 75-59-2 HCAPLUS

CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



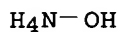
RN 121-44-8 HCAPLUS

CN Ethanamine, N,N-diethyl- (9CI) (CA INDEX NAME)



RN 1336-21-6 HCAPLUS

CN Ammonium hydroxide ((NH₄)(OH)) (9CI) (CA INDEX NAME)



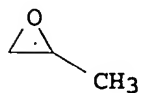
RN 106392-12-5 HCAPLUS

CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9

CMF C3 H6 O



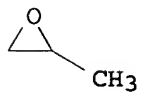
CM 2

CRN 75-21-8
CMF C2 H4 O

RN 106392-12-5 HCAPLUS

CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O

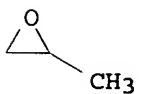
CM 2

CRN 75-21-8
CMF C2 H4 O

RN 691397-13-4 HCAPLUS

CN Oxirane, methyl-, polymer with oxirane, triblock (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O

CM 2

CRN 75-21-8

CMF C2 H4 O



L39 ANSWER 2 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:823155 HCAPLUS

ED Entered STN: 19 Aug 2005

TI Synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores

IN Khandelwal, Sanjeev

PA India

SO U.S. Pat. Appl. Publ., 25 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM A61K031-545

ICS A61K031-47; A61K031-43; A61K031-716

INCL 424470000; 514192000; 514057000; 514200000

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 1

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005181051	A1	20050818	US 2004-13110	20041215
	EP 1566176	A1	20050824	EP 2005-250879	20050216
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
PRAI	IN 2004-MU178	A	20040216		
	IN 2004-MU258	A	20040303		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 20050181051	ICM	A61K031-545
	ICS	A61K031-47; A61K031-43; A61K031-716
	INCL	424470000; 514192000; 514057000; 514200000
US 2005181051	NCL	424/470.000; 514/192.000; 514/057.000; 514/200.000

AB A synergistic antibacterial formulation for oral delivery of cefixime trihydrate, cloxacillin sodium in an extended release form and an immediate release form, and Lactobacillus sporogenes spores is provided. For example, sustained-release granules were prepared by wet granulation of cloxacillin sodium 50.0 kg and hydroxypropyl Me cellulose (HPMC; average viscosity 4000 cps) 6.0 kg, using a binder comprising HPMC (average viscosity 50 cps) 800g dissolved in a mixture of dichloromethane 8.0 kg and iso-Pr alc. 12.0 kg. The core was prepared by blending cloxacillin sodium sustained-release granules obtained with a mixture of cloxacillin sodium particle 7.6 kg, cefixime trihydrate particles 11.2 kg, L. sporogenes spores 750 g, sodium starch glycolate 1.0 kg, colloidal silicon dioxide 0.3 kg, sodium lauryl sulfate 1.0 kg and talc 1.0 kg was prepared. Magnesium stearate 1.0 kg was added and further blended, resulting in the lubricated core mass. This core mass was then compressed into cores of average weight of 806.2 mg \pm 3%. The core obtained were pan coated with a film coating composition containing Et cellulose 0.8 kg, hydroxypropyl cellulose 0.8 kg, iso-Pr alc. 12 kg, methylene chloride 22 kg, di-Et phthalate 0.01 kg and titanium dioxide 0.15 kg in a stainless steel container and stirred for five minutes using overhead stirrer until

a smooth slurry was obtained. The coated tablets were polished with talc. The film-coated tablet (average weight 820 mg <plus/minus>3%) contained (i) cloxacillin sodium equivalent to 250 mg cloxacillin sustained release, (ii) cloxacillin sodium equivalent to 250 mg cloxacillin immediate release, (III) cefixime trihydrate equivalent to 100 mg cefixime immediate release, and (IV) L. sporogenes 45 million spores.

ST cloxacillin cefixime Lactobacillus coated tablet synergistic antibacterial

IT Fatty acids
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(C6-30; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Alcohols
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(C16-18, ethoxylated; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Alcohols
Glycerides
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(C16-18; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Gums and Mucilages
(Panwar gum, larch arabolactan; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Drug delivery systems
(controlled-release; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Monoglycerides
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(diacetylated; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Alcohols
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fatty, C6-30; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Lipids
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glycerolipids; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Citrus
(pulp; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Aerogels
(silica; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Waxes
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(spermaceti; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Acacia
Antibacterial agents
Antibiotics
Bacillus coagulans
Beeswax
Cation exchangers
Chondrus crispus
Combination chemotherapy

Human
 Molasses
 Porifera
 Surfactants
 (synergistic antibacterial formulation containing cefixime trihydrate,
 cloxacillin sodium and Lactobacillus sporogenes spores)

IT Alcohols
 Carnauba wax
 Ceramides
 Cottonseed oil
 Flavonoids
 Gelatins
 Glycerides
 Polyamides
 Polyoxyalkylenes
 Polysiloxanes
 Rosin
 Silica gel
 Smectite-group minerals
 Soybean oil
 Sphingolipids
 Sphingosines
 Waxes
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (synergistic antibacterial formulation containing cefixime trihydrate,
 cloxacillin sodium and Lactobacillus sporogenes spores)

IT Drug interactions
 (synergistic; synergistic antibacterial formulation containing cefixime
 trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT Drug delivery systems
 (tablets, coated; synergistic antibacterial formulation containing cefixime
 trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT 9003-39-8D, crosslinked
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (Crospovidone; synergistic antibacterial formulation containing cefixime
 trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT 7631-86-9, Colloidal silicon dioxide
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (colloidal; synergistic antibacterial formulation containing cefixime
 trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT 642-78-4, Cloxacillin Sodium 125110-14-7, Cefixime Trihydrate
 RL: ADV (Adverse effect, including toxicity); PAC (Pharmacological
 activity); PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological
 study); USES (Uses)
 (synergistic antibacterial formulation containing cefixime trihydrate,
 cloxacillin sodium and Lactobacillus sporogenes spores)

IT 9004-65-3, Hydroxypropyl methylcellulose
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES
 (Uses)
 (synergistic antibacterial formulation containing cefixime trihydrate,
 cloxacillin sodium and Lactobacillus sporogenes spores)

IT 50-70-4D, Sorbitol, derivs. 50-99-7, Glucose 56-81-5D, Glycerol,
 derivs. 57-10-3, Palmitic Acid 57-11-4, Stearic acid 57-50-1,
 Sucrose 57-50-1D, Sucrose, esters 57-88-5, Cholesterol 63-42-3,
 Lactose 67-68-5, Dimethyl sulfoxide 69-65-8D, Mannitol, derivs.
 71-41-0, Pentanol 106-11-6, Diethylene glycol monostearate 107-21-1D,
 1,2-Ethanediol, derivs. 110-54-3, Hexane 111-03-5, Glyceryl monooleate
 111-27-3, Hexanol 111-60-4, Ethylene glycol monostearate 112-92-5,
 Stearyl Alcohol 117-39-5, Quercetin 151-21-3, Sodium lauryl sulfate
 446-72-0, Genistein 480-40-0, Chrysin 480-44-4, Acacetin 520-27-4,

Diosmin 538-24-9D, Glyceryl trilaurate, glyceryl ester 546-93-0, Magnesium carbonate 555-45-3D, Glyceryl trimyristate, glyceryl ester 557-04-0, Magnesium stearate 557-05-1, Zinc stearate 1309-48-4, Magnesium oxide 1323-39-3, Propylene glycol monostearate 1338-39-2, Sorbitan monolaurate 1338-41-6, Sorbitan monostearate 1338-43-8, Sorbitan monooleate 1344-95-2, Calcium silicate 1592-23-0, Calcium stearate 3097-08-3, Magnesium lauryl sulfate 7757-93-9, Dibasic calcium phosphate 7758-87-4, Tribasic calcium phosphate 8007-43-0, Sorbitan sesquioleate 9000-01-5, Gum arabic 9000-28-6, Ghatti gum 9000-30-0, Guar gum 9002-18-0, Agar 9002-89-5, Polyvinyl alcohol 9002-92-0, Lauromacrogol 9003-20-7, Polyvinyl acetate 9003-39-8, Polyvinylpyrrolidone 9004-32-4, Carboxymethylcellulose sodium 9004-34-6, Cellulose 9004-38-0, Cellulose acetate phthalate 9004-53-9, Dextrin 9004-57-3, Ethylcellulose 9004-64-2, Hydroxypropylcellulose 9004-67-5, Methylcellulose 9004-99-3, PEG Stearate 9005-25-8, Starch 9005-38-3, Sodium alginate 9005-64-5, polysorbate 20 9005-65-6, polysorbate 80 9005-66-7, polysorbate 40 9005-67-8, polysorbate 60 9005-70-3, polysorbate 85 9005-71-4, polysorbate 65 9011-14-7, Polymethyl methacrylate 9036-19-5 9036-66-2, Arabinogalactan 9050-04-8 9057-02-7, Pullulan 9057-06-1, Carboxymethyl starch 9063-38-1, Sodium starch glycolate 10236-47-2, Naringin 11099-07-3D, Glyceryl stearate, glyceryl ester 12619-70-4, Cyclodextrin 14807-96-6, Talc 14987-04-3, Magnesium trisilicate 25087-26-7, Polymethacrylic acid 25301-02-4, Tyloxapol 25322-68-3, Polyethylene glycol 25322-68-3D, Macrogol, ethers and esters 25618-55-7D, Polyglycerol, derivs. 26027-38-3, Nonoxynol 26266-57-9, Sorbitan monopalmitate 26266-58-0, Sorbitan trioleate 26338-57-8, Maleic anhydride-vinyl alcohol copolymer 26658-19-5, Sorbitan tristearate 31566-31-1, Glyceryl monostearate 37353-59-6, Hydroxymethyl cellulose 54182-62-6, Polacrilin 58858-21-2, Hydroxypropyl methylcellulose acetate 69670-80-0, Hydroxymethyl propylcellulose 74811-65-7, Croscarmellose sodium 86157-80-4 106392-12-5, Poloxamer 222414-51-9, Polyethylene glycol hydroxystearate

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

IT 7631-86-9, Colloidal silicon dioxide

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(colloidal; synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 106392-12-5, Poloxamer

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synergistic antibacterial formulation containing cefixime trihydrate, cloxacillin sodium and Lactobacillus sporogenes spores)

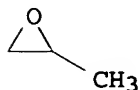
RN 106392-12-5 HCAPLUS

CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9

CMF C3 H6 O



CM 2

CRN 75-21-8

CMF C2 H4 O



L39 ANSWER 3 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
 AN 2005-416664 [42] WPIX
 DNN N2005-338024 DNC C2005-127515
 TI **Slurry** useful for **chemical mechanical polishing** in e.g. manufacturing semiconductor device comprises a copper oxidizing agent; a complexing agent; a surfactant; an inorganic particle; and resin particle containing polystyrene.
 DC A97 E19 G04 L02 L03 P61 U11
 IN FUKUSHIMA, D; MINAMIHABA, G; YAMAMOTO, S; YANO, H
 PA (TOKE) TOSHIBA KK; (FUKU-I) FUKUSHIMA D; (MINA-I) MINAMIHABA G; (YAMA-I) YAMAMOTO S; (YANO-I) YANO H
 CYC 2
 PI US 2005118821 A1 20050602 (200542)* 14 H01L021-302
 JP 2005159166 A 20050616 (200542) 19 H01L021-304
 ADT US 2005118821 A1 US 2004-932096 20040902; JP 2005159166 A JP 2003-398163 20031127
 PRAI JP 2003-398163 20031127
 IC ICM H01L021-302; H01L021-304
 ICS B24B037-00; C09K003-14; H01L021-461
 AB US2005118821 A UPAB: 20050704
NOVELTY - A chemical mechanical polishing (CMP) slurry comprises a copper oxidizing agent; a complexing agent forming a copper organic complex; a surfactant; an inorganic particle; and a resin particle (R1) containing polystyrene. (R1) Has a functional group of same kind of polarity as that of the inorganic particle, an average particle diameter of less than 100 nm, and is incorporated at a concentration of less than 1 weight%.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) **polishing** of a semiconductor involving contacting a **polishing** surface of the semiconductor substrate with a **polishing** pad attached to a turntable, and dropping the **CMP slurry** on the **polishing** pad to **polish** the **polishing** surface; and

(2) manufacturing a semiconductor device involving forming an insulating film above a semiconductor substrate, forming a recessed portion in the insulating film, depositing a conductive material inside the recessed portion and above the insulating film to form a conductive layer, and removing the conductive material which is deposited above the insulating film by **CMP** using a **CMP slurry** to selectively leave the conductive material in the recessed portion.

USE - For **chemical mechanical polishing (CMP)** of a copper film formed on a surface of a semiconductor

substrate having an over-plating portion, by removing the residual copper in the region of over-plating to form a copper film of uniform thickness, in the manufacture of a semiconductor device.

ADVANTAGE - By using the **CMP slurry composition** the **polishing** can be performed at high **polishing** rate while suppressing the generation of erosion or dishing.

Dwg.0/6

FS CPI EPI GMPI

FA AB; DCN

MC CPI: A04-C02E; A12-A03; E06-D01; E06-D02; E06-D08; E07-D04C; E10-A09B4; E10-B02D6; E10-C02D1; E10-C02D2; E10-E04M3; E31-E01; E31-E03; E31-P03; E34-C02; E35-K02; G04-B04; L02-F; L02-J; L04-C27
EPI: U11-A10; U11-C06A1A

L39 ANSWER 4 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2005-402873 [41] WPIX

DNN N2005-326740 DNC C2005-124404

TI Manufacture of semiconductor device, e.g. memory, comprises **chemical mechanical polishing** spin-on glass film on **silicon dioxide** film using **slurry** containing cerium oxide and cationic surfactant.

DC L03 U11

IN MATSUI, Y; MINAMIHABA, G; SHIGETA, A; YANO, H

PA (TOKE) TOSHIBA KK; (MATS-I) MATSUI Y; (MINA-I) MINAMIHABA G; (SHIG-I) SHIGETA A; (YANO-I) YANO H

CYC 3

PI US 2005106874 A1 20050519 (200541)* 26 H01L021-302
JP 2005109452 A 20050421 (200541) 21 H01L021-304
KR 2005027157 A 20050317 (200557) H01L021-304

ADT US 2005106874 A1 US 2004-935429 20040908; JP 2005109452 A JP 2004-258030 20040906; KR 2005027157 A KR 2004-72936 20040913

PRAI JP 2004-258030 20040906; JP 2003-321474 20030912

IC ICM H01L021-302; H01L021-304

ICS H01L021-461

AB US2005106874 A UPAB: 20050629

NOVELTY - Manufacturing a semiconductor device comprises depositing a **silicon dioxide** film (3) on a substrate (1) having a wiring pattern (2); coating a spin-on glass (SOG) film (4) on the **silicon dioxide** film; and **polishing** the spin-on glass film using **slurry** containing cerium oxide and cationic surfactant with a **chemical-mechanical polishing** process.

DETAILED DESCRIPTION - A further INDEPENDENT CLAIM is included for manufacture of a semiconductor device.

USE - For manufacturing a semiconductor device e.g. memory, high speed logic large scale integrated circuit (LSI), system LSI or memory/logic mixed LSI.

ADVANTAGE - The planarization step executed with the **chemical -mechanical polishing** process that uses the **slurry** containing cerium oxide and cationic surfactant(s) selectively **polishes** SiO₂ film and SOG film with the **polishing** selectivity value of at least 5. The reliability of the semiconductor device can be enhanced through the enhancement of the insulating capability of the semiconductor device.

DESCRIPTION OF DRAWING(S) - The figure shows a section of a semiconductor device during processing.

Substrate 1

Wiring pattern 2

Silicon dioxide film 3

SOG film 4
Dwg.3B/16
FS CPI EPI
FA AB; GI
MC CPI: L04-B04A; L04-C12; L04-C12D; L04-C27; L04-E15
EPI: U11-C06A1A; U11-C18B5

L39 ANSWER 5 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2005-354123 [36] WPIX
DNN N2005-289162 DNC C2005-109369
TI **Slurry** useful for **chemical mechanical polishing** of copper and barrier films comprises at least one **abrasive**, at least one organic phosphonate, at least one oxidizer and water.
DC A97 E11 L02 L03 U11
IN JENG, W; TSENG, S; YANG, K
PA (JENG-I) JENG W; (TSEN-I) TSENG S; (YANG-I) YANG K
CYC 1
PI US 2005090104 A1 20050428 (200536)* 12 H01L021-302
ADT US 2005090104 A1 Provisional US 2003-514830P 20031027, US 2004-958417 20041006
PRAI US 2003-514830P 20031027; US 2004-958417 20041006
IC ICM H01L021-302
ICS H01L021-461
AB US2005090104 A UPAB: 20050608
NOVELTY - A **chemical mechanical polishing slurry** comprises at least one **abrasive**, at least one organic phosphonate, at least one oxidizer and water.
USE - For **chemical mechanical polishing** of copper and barrier films (claimed).
ADVANTAGE - The **slurry** is capable of **polishing** copper at high removal rate at a relatively low down force so that **CMP** throughput is improved and **CMP** defects are reduced, has high selectivity to tantalum barrier. The barrier **slurry** delivers good planarity, has high hydrogen peroxide stability so that **slurry** pot lifetime is extended and the performance of **chemical mechanical polishing** process is stable. The **slurry** gives low dishing and erosion so that the interconnect metal lines have uniform sheet resistance and the wafer surface planarity is good for fabrication multi-level interconnects. The **slurry** provides smooth copper surface on the **polished** surface, gives low copper corrosion defects on **polished** wafers, is cost effective. The organic phosphonates are excellent chelating agents for copper. The phosphonates generally have significantly higher solubility in water comparing to many carboxylic and amino acids or salts given in the prior art for copper **chemical mechanical polishing**. The manufacturing process of **slurry** is usually simpler and more cost effective.
Dwg.0/5
FS CPI EPI
FA AB; DCN
MC CPI: A12-W12B; E05-G02; E05-G03D; E31-C; E31-E01; E31-E03; E31-P03; E34-C02; E34-E; E35-K02; E35-S; E35-U05; L02-F04; L04-B04A; L04-C27
EPI: U11-A10; U11-C06A1A

L39 ANSWER 6 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2005-151610 [16] WPIX
CR 2005-519376 [53]
DNN N2005-127934 DNC C2005-048924
TI **Chemical mechanical polishing slurry**

for removing **silicon dioxide** in preference to silicon nitride useful in manufacture of semiconductor wafer, comprises selectivity enhancer comprising nucleic acid related compound e.g. uridine.

DC A85 B04 D16 P61 U11
 IN HEGDE, S; XU, W; XU, W P
 PA (HEGD-I) HEGDE S; (XUWW-I) XU W; (NYAC-N) NYACOL NANO TECHNOLOGIES INC
 CYC 108
 PI US 2005028450 A1 20050210 (200516)* 6 B24D003-02
 WO 2005014746 A1 20050217 (200516) EN C09G001-02
 RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE
 LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
 W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE
 DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG
 KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ
 OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG
 US UZ VC VN YU ZA ZM ZW

ADT US 2005028450 A1 US 2003-635949 20030807; WO 2005014746 A1 WO 2004-US25536 20040806

PRAI US 2003-635949 20030807
 IC ICM B24D003-02; C09G001-02
 ICS C09K003-14; H01L021-304; H01L021-306

AB US2005028450 A UPAB: 20050818
 NOVELTY - A **chemical mechanical polishing** (**CMP**) **slurry** comprises a liquid, **abrasive** particles and a selectivity enhancer comprising a nucleic acid related compound.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a **CMP polishing** process for selectively removing **silicon dioxide** from the surface of workpiece containing surface areas of **silicon dioxide** and surface areas of silicon nitride in which the surface to be **polished** is contacted with a **polishing pad** and a **CMP slurry** is applied to the interface between the **polishing pad** the surface to be **polished**.

USE - The **slurry** is used for selectively removing **silicon dioxide** from the surface of a work-piece containing surface areas of **silicon dioxide** and surface areas of silicon nitride. It is useful in the manufacture of semiconductor wafers and chips.

ADVANTAGE - The **slurry** exhibits high selectivities for removing **silicon dioxide** in preference to silicon nitride.

Dwg.0/0

FS CPI EPI GMPI
 FA AB; DCN
 MC CPI: A12-A03; A12-E07C; B04-B03A; B04-B03B; B04-B03D; B04-B03E; B04-C03;
 B04-E01; B05-B02C; B06-D09; B07-D04A; B07-D12; B10-A22; B10-B04B;
 D05-H10; D05-H13
 EPI: U11-A10; U11-C06A1A

L39 ANSWER 7 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
 AN 2005-120520 [13] WPIX
 CR 2004-641155 [62]

DNN N2005-103959 DNC C2005-040088

TI **Chemical mechanical polishing slurry**
 used in forming damascene wiring used for manufacturing semiconductor device, comprises solvent, **abrasive** grains, and silicone-based surfactant having specific hydrophilic lipophilic balance value.

DC A97 G04 L03 U11

IN MATSUI, Y; MINAMIHABA, G; YANO, H
 PA (TOKE) TOSHIBA KK
 CYC 1
 PI US 2005009322 A1 20050113 (200513)* 15 H01L021-4763
 ADT US 2005009322 A1 Div ex US 2003-706052 20031113, US 2004-909287 20040803
 FDT US 2005009322 A1 Div ex US 6794285
 PRAI JP 2003-37179 20030214
 IC ICM H01L021-4763
 ICS H01L021-302; H01L021-461
 AB US2005009322 A UPAB: 20050224
 NOVELTY - A **chemical mechanical polishing (CMP)** slurry comprises a solvent, **abrasive** grains, and silicone-based surfactant having an hydrophilic lipophilic balance (HLB) value of 7-20.
 USE - The **CMP slurry** is used in the formation of damascene wiring used for mounting a high-speed logic large scale integrated circuit (LSI), system LSI and memory/logic hybrid LSI. It is used in the manufacture of semiconductor device.
 ADVANTAGE - The **slurry** allows the formation of damascene wiring, where the density of defects and the concentration of surface impurities can be minimized.
 DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of a method of manufacturing a semiconductor device.
 Plug 102
 Laminated insulating films 103, 104
 Barrier metal film 105
 Wiring material film 106
 Dwg.6A/6
 FS CPI EPI
 FA AB; GI
 MC CPI: A05-H01B; A06-A00E; A12-A03; A12-W12C; G04-B04; L04-C13B; L04-C27
 EPI: U11-A10; U11-C05D2; U11-C06A1A

L39 ANSWER 8 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:392243 HCAPLUS
 DN 140:398393
 ED Entered STN: 14 May 2004
 TI **Chemical mechanical polishing composition and method**
 IN Li, Yuzhou; Keleher, Jason; Zhao, Junzi; Brancewicz, Chris
 PA Sachem, Inc., USA
 SO U.S. Pat. Appl. Publ., 31 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C09K003-14
 ICS H01L021-302; H01L021-461
 INCL 438689000
 CC 76-3 (Electric Phenomena)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004092102	A1	20040513	US 2002-292404	20021112
PRAI	US 2002-292404		20021112		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2004092102	ICM	C09K003-14
	ICS	H01L021-302; H01L021-461
	INCL	438689000

US 2004092102 NCL 438/689.000

ECLA C09G001/04; H01L021/321P2

- AB A chemical-mech. polishing (CMP)
formulation and method for using the same. The composition is useful
for polishing semiconductor substrates, and particularly
substrate surfaces containing copper, tungsten, or alloys of the same. The
CMP formulation may contain a copolymer enhancement agent such as
a Pluronic compound (e.g., Pluronic P103, Pluronic P123, Pluronic F108,
Pluronic F88, etc.), and/or a vesicle encapsulating agent, as well as an
active agent that is chemical reactive with the substrate to enhance
polishing performance. The active agent may be a bifunctional
compound that is capable of functioning as both a passivating agent and a
complexing agent to achieve an optimum rate of passivation and oxidation on
the substrate surface. An active agent can also take the form of an
oxidation activator, such as a metal ion, encapsulated in a vesicle or
micelle, that is released with applied pressure to accelerate the removal
process and improve planarization efficiency.
- ST chem mech polishing compn process
- IT Abrasives
Diodes
Hydrotropes
Integrated circuits
Interconnections, electric
Oxidizing agents
Transistors
(chemical-mech. polishing composition
and polishing method using same)
- IT Amines, uses
Phospholipids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(chemical-mech. polishing composition
and polishing method using same)
- IT Polishing
(chemical-mech.; chemical-mech.
polishing composition and polishing method using
same)
- IT Solvents
(cosolvents; chemical-mech. polishing
composition and polishing method using same)
- IT Acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(inorg.; chemical-mech. polishing
composition and polishing method using same)
- IT Surfactants
(nonionic; chemical-mech. polishing
composition and polishing method using same)
- IT Acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(organic; chemical-mech. polishing
composition and polishing method using same)
- IT Sulfonic acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(salts, aryl; chemical-mech. polishing
composition and polishing method using same)
- IT Semiconductor materials
(substrate; chemical-mech. polishing
composition and polishing method using same)
- IT Copper alloy, base
Tungsten alloy, base
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PYP (Physical process); PROC (Process); USES (Uses)
(chemical-mech. polishing composition
and polishing method using same)

IT 1306-38-3, Ceria, uses 1309-48-4, Magnesia, uses 1314-23-4, Zirconia,
uses 1344-28-1, Alumina, uses
RL: NUU (Other use, unclassified); USES (Uses)
(abrasive; chemical-mech. polishing
composition and polishing method using same)

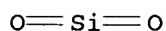
IT 7429-90-5, Aluminum, processes 7440-25-7, Tantalum, processes
7440-32-6, Titanium, processes 7440-33-7, Tungsten, processes
7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process); USES (Uses)
(chemical-mech. polishing composition
and polishing method using same)

IT 51-17-2, Benzimidazole 56-40-6, Glycine, uses 64-18-6, Formic acid,
uses 64-19-7, Acetic acid, uses 67-63-0, 2-Propanol, uses 79-09-4,
Propanoic acid, uses 107-21-1, Ethylene glycol, uses 112-60-7,
Tetraethylene glycol 144-62-7, Oxalic acid, uses 147-85-3, Proline,
uses 288-32-4D, Imidazole, derivative 1300-72-7, Sodium xylenesulfonate
1310-73-2, Sodium hydroxide, uses 7631-86-9, Silicon
oxide, uses 7647-01-0, Hydrochloric acid, uses 7664-41-7,
Ammonia, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid,
uses 7732-18-5, Water, uses 10034-85-2, Hydrogen iodide
106392-12-5, Pluronic P103 203945-07-7, SiLK (dielectric)
RL: NUU (Other use, unclassified); USES (Uses)
(chemical-mech. polishing composition
and polishing method using same)

IT 7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(chemical-mech. polishing composition
and polishing method using same)

IT 7631-86-9, Silicon oxide, uses
106392-12-5, Pluronic P103
RL: NUU (Other use, unclassified); USES (Uses)
(chemical-mech. polishing composition
and polishing method using same)

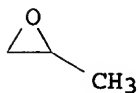
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 106392-12-5 HCAPLUS
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O



L39 ANSWER 9 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:759257 HCAPLUS
DN 141:252819
ED Entered STN: 17 Sep 2004
TI Aluminum or glass substrates for magnetic hard disks, their manufacture,
and **polishing slurries**
IN Horie, Yuji; Okuyama, Hiromitsu; Tanifuji, Tatsuya
PA Nippon Micro Coating Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G11B005-73
ICS B24B021-00; B24B037-00; C09K003-14; G11B005-84
CC 77-8 (Magnetic Phenomena)
Section cross-reference(s): 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004259417	A2	20040916	JP 2003-92680	20030224
	US 2004241379	A1	20041202	US 2004-776372	20040210
PRAI	JP 2003-92680	A	20030224		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004259417	ICM	G11B005-73
	ICS	B24B021-00; B24B037-00; C09K003-14; G11B005-84
JP 2004259417	FTERM	3C058/AA05; 3C058/AA07; 3C058/AA09; 3C058/AC04; 3C058/CB01; 3C058/CB03; 3C058/DA17; 5D006/CB04; 5D006/CB07; 5D006/DA03; 5D006/EA04; 5D112/AA02; 5D112/AA24; 5D112/BA06; 5D112/GA09; 5D112/GA13; 5D112/GA14
US 2004241379	NCL	428/848.200
	ECLA	G11B005/73N; G11B005/84B

AB The substrates are equipped with textured streaks of 70 lines/ μ m in the radius direction. Method for manufacture of the substrates includes **polishing** the substrates by pressing a running **polishing** tape towards the substrates that are rotating in the opposite direction, under feeding a **polishing slurry**. The **polishing slurry** contains single crystal diamond particles, polycryst. diamond particles, or their clusters having diameter 1-50 nm as **abrasive** grains and water or water-based solution as dispersants. The said **polishing slurries** containing clusters of the single crystal and/or polycryst. diamond particles are also claimed.

ST aluminum substrate **polishing** magnetic hard disk; glass substrate streaked surface hard disk; diamond cluster particle **abrasive polishing slurry**

IT Surfactants
(anionic, **slurry** dispersant; manufacture of Al (alloy) or glass

- substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Clusters
(diamond particle; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Amides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(fatty, **slurry** dispersant; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Surface structure
(grooved; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Magnetic disks
(hard; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Glass substrates
Polishing
(manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(metal salts, **slurry** dispersant; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Surfactants
(**nonionic**, **slurry** dispersant; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Polyamide fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**polishing** cloth; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT **Slurries**
(**polishing**; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Glycols, uses
Phosphates, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**slurry** dispersant; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT **Amines**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable oil, **slurry** dispersant; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT Fats and Glyceridic oils, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(vegetable, amines, slurry dispersant; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)

- IT. Aluminum alloy, base
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT 7782-40-3, Diamond, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**abrasive** particles; manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)
- IT 7429-90-5, Aluminum, processes
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (manufacture of Al (alloy) or glass substrates with grooved surfaces for magnetic hard disks, by **polishing** with diamond cluster **abrasive slurries**)

L39 ANSWER 10 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:198610 HCAPLUS

DN 140:244785

ED Entered STN: 11 Mar 2004

TI **Chemical-mechanical polishing** process for forming wiring structures, and abrasive **compositions** used therein

IN Sakai, Kenji; Tamai, Kazumasa; Kawamura, Atsunori; Matsuda, Takeshi; Hirano, Tatsuhiko; Ina, Katsuyoshi

PA Fujimi, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09K003-14

ICS B24B037-00; H01L021-304

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 37, 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004075862	A2	20040311	JP 2002-238596	20020819
	US 2004084414	A1	20040506	US 2003-642929	20030818
PRAI	JP 2002-238596	A	20020819		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2004075862	ICM	C09K003-14
	ICS	B24B037-00; H01L021-304
JP 2004075862	FTERM	3C058/AA07; 3C058/CB01; 3C058/DA02; 3C058/DA13; 3C058/DA17
US 2004084414	NCL	216/088.000
	ECLA	C09G001/02; C23F003/00

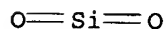
OS MARPAT 140:244785

AB The process for **polishing** of a material having a Cu-based elec. conductive layer formed on a barrier layer on an elec. insulating layer

having concave parts, involves (1) **polishing** of the elec. conductive layer not to expose the barrier layer with an abrasive **composition** containing abrasives (A) selected from SiO₂ and Al₂O₃, **polishing** accelerators (B) selected from glycine and α-alanine, H₂O, and H₂O₂, (2) **polishing** of the elec. conductive layer to expose the barrier layer with an abrasive **composition** containing the abrasives (A), the **polishing** accelerators (B), organic compds. (C) selected from poly(ethylene oxide), poly(propylene oxide), polyoxyethylene alkyl ethers, polyoxypropylene alkyl ethers, polyoxyethylene-polyoxypropylene alkyl ethers, and polyoxyalkylene addition polymers having carbon triple bonds R₁₀(X)mCR₃R₅C.tplbond.CCR₄R₆(Y)nOR₂ (R₁-R₆ = H, C₁-10 alkyl; X, Y = ethyleneoxy, propyleneoxy; m, n = 1-20), corrosion inhibitors (D) selected from benzotriazole and its derivs., H₂O₂, and H₂O, and (3) **polishing** of the barrier layer with an abrasive **composition** containing the abrasives (A), acids (E) selected from HNO₃, HCl, lactic acid, H₃PO₄, H₂SO₄, AcOH, oxalic acid, citric acid, tartaric acid, malonic acid, succinic acid, maleic acid, and fumaric acid or alkalies (F) selected from KOH, NH₄OH, and NaOH, the corrosion inhibitors (D), and H₂O. The process prevents dishing or erosion.

- ST **chem mech polishing** abrasive compn wiring; dishing erosion prevention **chem mech polishing**
- IT Alcohols, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(alkoxylated; **chemical-mech. polishing** process and abrasive compns. for forming wiring structures without dishing or erosion)
- IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(alkyl ethers; **chemical-mech. polishing** process and abrasive compns. for forming wiring structures without dishing or erosion)
- IT Abrasives
Corrosion inhibitors
Electric conductors
Polishing materials
Semiconductor device fabrication
(**chemical-mech. polishing** process and abrasive compns. for forming wiring structures without dishing or erosion)
- IT Acids, uses
Bases, uses
Polyoxyalkylenes, uses
Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**chemical-mech. polishing** process and abrasive compns. for forming wiring structures without dishing or erosion)
- IT **Polishing**
(**chemical-mech.; chemical-mech. polishing** process and abrasive compns. for forming wiring structures without dishing or erosion)
- IT Alcohols, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(ethoxylated; **chemical-mech. polishing**

- process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(mono(alkyl group)-terminated; **chemical-mech. polishing** process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- IT 7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**chemical-mech. polishing** process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- IT 50-21-5, Lactic acid, uses 56-40-6, Glycine, uses 56-41-7, α -Alanine, uses 64-19-7, Acetic acid, uses 77-92-9, Citric acid, uses 87-69-4, Tartaric acid, uses 110-15-6, Succinic acid, uses 110-16-7, Maleic acid, uses 110-17-8, Fumaric acid, uses 141-82-2, Malonic acid, uses 144-62-7, Oxalic acid, uses 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1336-21-6, Ammonium hydroxide 1344-28-1, Aluminum oxide, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7722-84-1, Hydrogen peroxide, uses 9003-11-6D, **Ethylene oxide-propylene oxide** copolymer, alkyl ethers 9014-85-1 25322-68-3, Poly(**ethylene oxide**) 25322-68-3D, Polyethylene glycol, alkyl ethers 25322-69-4, Poly(**propylene oxide**) 25322-69-4D, Polypropylene glycol, alkyl ethers
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**chemical-mech. polishing** process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- IT 7631-86-9, Colloidal silica, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(colloidal; **chemical-mech. polishing** process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- IT 95-14-7, 1H-Benzotriazole
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(corrosion inhibitor; **chemical-mech. polishing** process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- IT 7631-86-9, Colloidal silica, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(colloidal; **chemical-mech. polishing** process and abrasive **compns.** for forming wiring structures without dishing or erosion)
- RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



AN 2004:159198 HCAPLUS
 DN 140:191477
 ED Entered STN: 27 Feb 2004
 TI Lapping oil **compositions** for finish **polishing** of
 composites constituted by multiple different-hardness materials,
 especially thin-film magnetic heads
 IN Saito, Isao; Orii, Kazuya
 PA Tokyo Magnetic Printing Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B24B037-00
 ICS C09K003-14; G11B005-31
 CC 77-8 (Magnetic Phenomena)
 Section cross-reference(s): 38, 57

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004058220	A2	20040226	JP 2002-220920	20020730
PRAI	JP 2002-220920		20020730		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP. 2004058220	ICM	B24B037-00
	ICS	C09K003-14; G11B005-31
JP 2004058220	FTerm	3C058/AA07; 3C058/AC04; 3C058/CA01; 3C058/CB02; 3C058/DA02; 5D033/DA22; 5D033/DA31

OS MARPAT 140:191477

AB The lapping oil **compsn.**, free from **abrasive** grains,
 contain nonaq. solvents and amine additives. The composites, e.g.,
 metal-ceramic composites, subjected for main **polishing** with
 dropping nonaq.-solvent **slurries** containing **nonionic**
surfactants as disperse medium and free **abrasive** grains,
 are finish **polished** with the lapping oil **compsn.** with
 dropping the **compsn.** The lapping oil **compsn.** can
 easily exclude unfixed **abrasive** grains for achieving high
 precise finish **polishing**.

ST finish **polishing** lapping oil additive amine; composite finish
polishing lapping oil additive amine; magnetic head finish
polishing lapping oil additive amine; metal ceramic composite
 finish **polishing** lapping oil

IT Alcohols, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material
 use); USES (Uses)
 (amino; lapping oil **compsn.** containing **amine** additives
 for finish **polishing** of composites, especially thin-film magnetic
 heads)

IT Metals, processes

RL: PEP (Physical, engineering or chemical process); PYP (Physical
 process); PROC (Process)
 (composites containing; lapping oil **compsn.** containing **amine**
 additives for finish **polishing** of composites, especially thin-film
 magnetic heads)

IT Amines, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material
 use); USES (Uses)
 (ethoxylated; lapping oil **compsn.** containing **amine**
 additives for finish **polishing** of composites, especially thin-film
 magnetic heads)

IT **Polishing**
(finish; lapping oil **compns.** containing **amine** additives
for finish **polishing** of composites, especially thin-film magnetic
heads)

IT Ceramic composites
Magnetic recording heads
Polishing materials
(lapping oil **compns.** containing **amine** additives for
finish **polishing** of composites, especially thin-film magnetic
heads)

IT **Amines, uses**
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(secondary; lapping oil **compns.** containing **amine**
additives for finish **polishing** of composites, especially thin-film
magnetic heads)

IT **Amines, uses**
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(tertiary; lapping oil **compns.** containing **amine**
additives for finish **polishing** of composites, especially thin-film
magnetic heads)

IT 51427-90-8, Iron alloy, Fe,Al,Si
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process); USES (Uses)
(Sendust, in magnetic heads; lapping oil **compns.** containing
amine additives for finish **polishing** of composites,
especially thin-film magnetic heads)

IT 11068-82-9 113724-99-5, Aluminum titanium carbide oxide
RL: DEV (Device component use); PEP (Physical, engineering or chemical
process); PYP (Physical process); PROC (Process); USES (Uses)
(in magnetic heads; lapping oil **compns.** containing **amine**
additives for finish **polishing** of composites, especially thin-film
magnetic heads)

IT 110-58-7, Amylamine 111-86-4, Octylamine 112-18-5,
Dodecyldimethylamine 112-90-3, Oleylamine 124-22-1, Dodecylamine
124-30-1, Stearylamine 52811-24-2
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(lapping oil **compns.** containing **amine** additives for
finish **polishing** of composites, especially thin-film magnetic
heads)

L39 ANSWER 12 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2004-487944 [46] WPIX
DNN N2004-384927 DNC C2004-181839
TI **Slurry composition** for secondary **polishing**
of silicon wafers, comprises hydroxyalkylcellulose-based water-soluble
polymeric thickener and polyoxyethylenealkylamine ether-based
nonionic surfactant.

DC A11 A25 A85 A97 E19 G04 L03 U11
IN LEE, G S; LEE, I G; NOH, H S; PARK, T W; LEE, I K; LEE, K S; ROH, H S
PA (CHEI-N) CHEIL IND INC
CYC 31
PI WO 2004053968 A1 20040624 (200446)* EN 14 H01L021-304
RW: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO
SE SI SK TR
W: CN JP US
KR 2004050726 A 20040617 (200466) H01L021-304
EP 1570512 A1 20050907 (200559) EN H01L021-304

R: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT
RO SE SI SK TR

ADT WO 2004053968 A1 WO 2003-KR1532 20030730; KR 2004050726 A KR 2002-77860
20021209; EP 1570512 A1 EP 2003-812702 20030730, WO 2003-KR1532 20030730

FDT EP 1570512 A1 Based on WO 2004053968

PRAI KR 2002-77860 20021209

IC ICM H01L021-304

AB WO2004053968 A UPAB: 20040720

NOVELTY - A slurry composition comprises (weight%)
colloidal silica having an average particle diameter of 30-80 nm
as an abrasive (2-10), ammonia (0.5-1.5), a
hydroxyalkylcellulose-based water-soluble polymeric thickener (0.2-1), a
polyoxyethylenealkylamine ether-based nonionic
surfactant (0.03-0.5), a quaternary ammonium base (0.01-1), and
deionized water (balance).

USE - For secondary polishing of silicon wafers during
chemical mechanical polishing (CMP)
process.

ADVANTAGE - The composition is capable of increasing the
dispersion stability of silica as an abrasive to
improve the polishing quality on pitted microscratches and
reducing the amount of silica particles to lower the
manufacturing cost. It has a low concentration of silica and
high dispersibility.

Dwg.0/0

FS CPI EPI

FA AB; DCN

MC CPI: A03-A04A; A12-E07C; E07-D05; E10-A22E; E10-A22G; E10-B03B3; E31-P03;
E32-A02; G04-B08; L04-C27

EPI: U11-A10; U11-C06A1A

L39 ANSWER 13 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2004-784203 [77] WPIX

DNN N2004-618064 DNC C2004-274426

TI Aqueous solution for use in processing semiconductor wafers; comprises
block copolymer surfactant and abrasive particles of silica,
alumina, and/or ceria.

DC A25 A26 A85 L03 U11

IN COOPER, K E; FLAKE, J C; GROSCHOPF, J; SOLOMENTSEV, Y E

PA (COOP-I) COOPER K E; (FLAK-I) FLAKE J C; (GROS-I) GROSCHOPF J; (SOLO-I)
SOLOMENTSEV Y E

CYC 1

PI US 2004224426 A1 20041111 (200477)* 7 H01L021-00

ADT US 2004224426 A1 US 2003-430987 20030507

PRAI US 2003-430987 20030507

IC ICM H01L021-00

ICS C09K003-14

AB US2004224426 A UPAB: 20041203

NOVELTY - Aqueous solution comprises a block copolymer surfactant having a
hydrophobic portion and a hydrophilic portion, and abrasive particles. The
abrasive particles comprise silica, alumina, and/or ceria.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a
method for processing semiconductor wafers comprising providing a
semiconductor wafer (150) having a wafer surface to a semiconductor
processing stage, and applying a block copolymer surfactant having a
hydrophobic portion and a hydrophilic portion to the wafer surface during
the semiconductor processing stage.

USE - For use in processing semiconductor wafers (claimed).

ADVANTAGE - The inventive aqueous solution is a reliable solution
that minimizes surface defects and does not require large additive

concentrations. The surfactant in the aqueous solution is a surface-active agent that reduces surface tension of a liquid or surface tension between a liquid and a solid.

DESCRIPTION OF DRAWING(S) - The figure illustrates a schematic of a **chemical mechanical polishing** processing tool that can be used in processing semiconductor wafers.

Chemical mechanical polishing tool 100

Semiconductor wafer 150

Polish film 155

Drive assembly 191

Actuator assembly 192

Dwg.1/2

FS CPI EPI

FA AB; GI

MC CPI: A12-H10; A12-W12C; L04-C07C; L04-C07F; L04-C09; L04-C27

EPI: U11-A10; U11-C06A1A

L39 ANSWER 14 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2004-286736 [27] WPIX

DNN N2004-227376 DNC C2004-110441

TI Application **composition** for manufacture of insulating thin film, contains organic polymer, organic solvent(s) and **silica** precursor containing compound(s) chosen from alkoxysilane and its hydrolysis substance, and polycondensate.

DC A26 A85 L03 U11

PA (ASAH) ASahi KASEI KK

CYC 1

PI JP 2004018608 A 20040122 (200427)* 28 C09D183-04

ADT JP 2004018608 A JP 2002-173542 20020614

PRAI JP 2002-173542 20020614

IC ICM C09D183-04

ICS C09D001-00; C09D005-25; C09D171-02; C09D183-02; H01L021-316; H01L021-768

AB JP2004018608 A UPAB: 20040426

NOVELTY - Application **composition** contains **silica** precursor, organic polymer and organic solvent(s) chosen from alcohol, ketone, amide and ester. The **silica** precursor contains compound(s) chosen from 1-6 functional alkoxysilane and its hydrolysis substance, and polycondensate. The organic polymer contains aliphatic ether block copolymer of binary or ternary.

DETAILED DESCRIPTION - Application **composition** contains **silica** precursor, organic polymer and at least one type of organic solvent selected from alcohol, ketone, amide and ester. The **silica** precursor contains at least one type of compound chosen from 1-6 functional alkoxysilane and its hydrolysis substance, and a polycondensate. The alkoxysilane is of formula (1) and/or formula (2):

$R_1n(Si)(OR_2)_{4-n}$ (1)

$R_3m(R_4O)_3-mSi-(R_7)p-Si(OR_5)_3-qR_6q$ (2)

R1-R6 = hydrogen or univalent organic group;

n = 0-3;

m and q = 0-2;

R7 = group with oxygen atom or (CH₂)_r;

r = 1-6; and

p = 0 or 1.

The sum of silicon atom originating in the alkoxysilane of 1-3 functionality and its hydrolysis substance, and polycondensate with respect to the total of the silicon atom originating in the alkoxysilane and its hydrolysis substance, is 5-80 mol%. The organic polymer contains 10 weight% or more of aliphatic ether block copolymer of binary or ternary except poly(ethylene oxide)-poly(propylene

oxide)-poly(ethylene oxide) which is a ternary block copolymer, with respect to all organic polymers. The block copolymer is of formula: $((R8O)_x-(R10O)_y-(R9O)_z)$.

R8-R10 = 1-10C alkylene group;

x = 2-200;

y = 2-100; and

z = 0-200.

INDEPENDENT CLAIMS are included for the following:

(1) insulating thin film;

(2) wiring structure using the insulating thin film as insulator; and

(3) semiconductor element with wiring structure.

USE - For manufacture of insulating thin film for wiring structure used for semiconductor element (claimed) and large scale integrated multilayer interconnections.

ADVANTAGE - The porous thin film with stable and low dielectric constant, is formed using the application composition. The thin film has mechanical strength which endures chemical mechanical polishing process in copper-wiring process of semiconductor element, and hence suitable for insulating films of substrate for large scale integration multilayer interconnections or semiconductor element.

Dwg.0/0

FS CPI EPI

FA AB

MC CPI: A05-H01B; A06-A00E2; A08-S02; A12-E07C; L04-C12E

EPI: U11-C05A

L39 ANSWER 15 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:481849 HCAPLUS

DN 139:40498

ED Entered STN: 24 Jun 2003

TI Abrasive compositions for CMP of device wafers

IN Miyazaki, Tadakazu

PA Sanyo Chemical Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09K003-14

ICS B24B037-00; H01L021-304

CC 57-7 (Ceramics)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003176479	A2	20030624	JP 2002-280113	20020926
PRAI	JP 2001-298001	A	20010927		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003176479	ICM	C09K003-14
	ICS	B24B037-00; H01L021-304

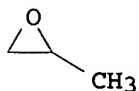
AB The abrasive compns. contain polyoxyalkylene ethers represented by general formula $Z[(CH_2CH_2O)_a(AO)_b]_p$ [R = C1-18 alkenyl, C2-18 alkenyl or alkapolienyl, C2-24 acyl, H; Z = H-removed residues of C1-12 p-valent alcs.; A = C3-4 alkylene; a, b = 1-100 integer; units of (CH_2CH_2O) and (AO) are randomly bonded or block bonded; weight ratio of CH_2CH_2O group and AO group = 30/70-70/30' p = 1-6 integer], aliphatic carboxylic acid amides, and water. The abrasives may comprise inorg. compds. selected from SiO_2 , Al_2O_3 , Ce oxide, Si_3N_4 , and ZrO_2 .

In the process, device wafers with wirings being formed are polished with the abrasive compns. Scratches on wafer surfaces have been suppressed.

- ST chem mech polishing abrasive compn
surfactant; semiconductor device wafer CMP abrasive compn; polyoxyalkylene nonionic surfactant chem mech polishing; aliph carboxylic acid amide surfactant CMP
- IT Abrasives
(abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT Amides, uses
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(aliphatic; abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT Polishing
(chemical-mech.; abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(ethers; abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT Surfactants
(nonionic; abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT 93-83-4, Oleic acid diethanolamide 111-58-0, Oleic acid monoethanolamide 106392-12-5, Ethylene oxide-propylene oxide block copolymer
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT 1306-38-3, Cerium oxide, uses 1314-23-4, Zirconium oxide, uses 1344-28-1, Alumina, uses 12033-89-5, Silicon nitride, uses
RL: NUU (Other use, unclassified); USES (Uses)
(abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT 7631-86-9, Colloidal silica, uses
RL: NUU (Other use, unclassified); USES (Uses)
(colloidal; abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- IT 106392-12-5, Ethylene oxide-propylene oxide block copolymer
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(abrasive compns. containing polyoxyalkylene ethers and aliphatic carboxylic acid amides for CMP of device wafers)
- RN 106392-12-5 HCAPLUS
- CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8

CMF C2 H4 O



IT 7631-86-9, Colloidal silica, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (colloidal; abrasive **compns.** containing polyoxyalkylene ethers
 and aliphatic carboxylic acid amides for **CMP** of device wafers)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L39 ANSWER 16 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:443964 HCAPLUS
 DN 139:15944
 ED Entered STN: 10 Jun 2003
 TI Coating **composition** for manufacture of electrically insulating
 porous **silica** film used in wiring structure of semiconductor
 device
 IN Hanahata, Hiroyuki
 PA Asahi Kasei Corporation, Japan
 SO Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D183-02
 ICS C01B033-12; C09D001-00; C09D005-25; C09D153-00; C09D171-02;
 C09D183-04; H01L021-312; H01L021-316
 CC 76-3 (Electric Phenomena)
 Section cross-reference(s): 38
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003165952	A2	20030610	JP 2001-364582	20011129
PRAI JP 2001-364582		20011129		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003165952	ICM	C09D183-02
	ICS	C01B033-12; C09D001-00; C09D005-25; C09D153-00; C09D171-02; C09D183-04; H01L021-312; H01L021-316

OS MARPAT 139:15944
 AB The **composition** comprises (1) **silica** precursors containing (A)

Si(OR)₄ (R₁ = divalent organic group), its hydrolyzate, and/or its polycondensate and/or (B) R₂Si(OR)₃ (R₁, R₂ = divalent organic group), its hydrolyzate, and/or its polycondensate to satisfy mol. fraction of (B-derived Si)/[(A-derived Si) + (B-derived Si)] 1-50 mol% (excluding 50 mol%), (2) organic polymers containing linear or branched block copolymers, and (3) solvents of alcs., ketones, amides, and/or esters. The porous SiO₂ film is manufactured by coating a substrate with the compn., converting the silica precursors to a gel to give a silica-organic polymer composite film, and removing the organic polymers from the composite film. The porous film has low dielec. constant and high durability in chemical mech. polishing in Cu wiring process, and scarcely generates pollutant gases in via-hole formation.

ST silica precursor org polymer porous film insulator; alkoxysilane block copolymer porous silica film manuf

IT Silanes
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkoxy; alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT Dielectric films
 Semiconductor devices
 Sol-gel processing
 (alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT Porous materials
 (films; alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT Films
 (porous; alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT 7631-86-9P, Silica, uses
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT 132894-01-0, Ethylene oxide-propylene oxide block copolymer dimethyl ether
 RL: NUU (Other use, unclassified); REM (Removal or disposal); PROC (Process); USES (Uses)
 (alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT 78-10-4, Tetraethoxysilane 2031-67-6, Methyltriethoxysilane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT 24991-55-7, Polyethylene glycol dimethyl ether
 RL: NUU (Other use, unclassified); REM (Removal or disposal); PROC (Process); USES (Uses)
 (block copolymers mixed with; alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

IT 7631-86-9P, Silica, uses
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (alkoxysilane-organic block copolymer compns. for manufacture of elec. insulating porous silica film in semiconductor device)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L39 ANSWER 17 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:239915 HCAPLUS
 DN 138:264107
 ED Entered STN: 28 Mar 2003
 TI Coating **composition** for manufacture of porous insulating
silica film in wiring structure in semiconductor device
 IN Hanahata, Hiroyuki; Ioka, Takaaki
 PA Asahi Kasei Corporation, Japan
 SO Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D183-04
 ICS C09D171-00; C09D183-02; C09D183-14; H01L021-316
 CC 76-3 (Electric Phenomena)
 Section cross-reference(s): 37

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003089769	A2	20030328	JP 2001-283539	20010918
PRAI	JP 2001-283539		20010918		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003089769	ICM	C09D183-04
	ICS	C09D171-00; C09D183-02; C09D183-14; H01L021-316

AB The **composition** comprises (A) **silica** precursors containing
 $R_1nSi(OR_2)_{4-n}$ (R_1, R_2 = monovalent organic residue; $n = 0-3$) and/or
 $R_3m(R_4O)_{3-m}SiR_7pSi(OR_5)_{3-q}R_6q$ (R_3-R_6 = monovalent organic residue; $m, q =$
 $0-2$; $R_7 = O, (CH_2)_r$; $r = 1-6$; $p = 0, 1$), their hydrolyzates, and/or their
 polycondensation products to satisfy Si molar fraction of mono-, di- and
 trifunctional alkoxysilanes to total Si in mono-, di-, tri-, tetra-,
 penta- and hexa-functional alkoxysilanes 1-50 mol%, (B) linear or branched
 polyether block copolymer-containing organic polymers, and (C) organic solvents of
 alcs., ketones, amides, and/or esters. The porous insulating film claimed
 is obtained by coating a substrate with the **composition**, forming a
silica/organic polymer composite film by gelation of the
silica precursors, and removing the organic polymers from the
 composite film. The porous film has low specific dielec. constant and high
 durability in **chemical mech. polishing** in Cu
 wiring process for semiconductor device fabrication and scarcely generates
 pollutant gases in via-hole formation.

ST semiconductor device wiring porous **silica** insulator film;
silica precursor org polymer coating insulator manuf; alkoxysilane
 polyether block copolymer coating **silica** film manuf

IT Silanes
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alkoxy; alkoxysilane- and organic polymer-containing coating **composition**
 for manufacture of porous insulating **silica** film in wiring
 structure in semiconductor device)

IT Dielectric films
 Semiconductor devices
 Sol-gel processing

(alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT Polyoxyalkylenes, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(block; alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT Porous materials
(films; alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT Films
(porous; alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT Polysiloxanes, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(silicate-, silica precursor; alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT 24991-55-7, Polyethylene glycol dimethyl ether 106392-12-5, Polyethylene glycol-polypropylene glycol block copolymer
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT 7631-86-9P, Silica, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

IT 502612-69-3P, Bis(triethoxysilyl)ethane-dimethyldiethoxysilane-tetraethoxysilane copolymer
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(silica precursor; alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

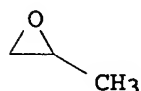
IT 106392-12-5, Polyethylene glycol-polypropylene glycol block copolymer
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(alkoxysilane- and organic polymer-containing coating composition for manufacture of porous insulating silica film in wiring structure in semiconductor device)

RN 106392-12-5 HCAPLUS
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9

CMF C3 H6 O



CM 2

CRN 75-21-8

CMF C2 H4 O

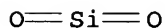


IT 7631-86-9P, Silica, uses

RL: DEV (Device component use); IMF (Industrial manufacture); TEM
(Technical or engineered material use); PREP (Preparation); USES (Uses)
(alkoxysilane- and organic polymer-containing coating **composition** for
manufacture of porous insulating silica film in wiring structure
in semiconductor device)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L39 ANSWER 18 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:239914 HCAPLUS

DN 138:264106

ED Entered STN: 28 Mar 2003

TI Coating **composition** for manufacture of porous insulating
silica film in wiring structure in semiconductor device

IN Hanahata, Hiroyuki; Ioka, Takaaki

PA Asahi Kasei Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09D183-02

ICS C09D001-00; C09D005-25; C09D183-04; C09D201-00; H01L021-312

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 37

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003089768	A2	20030328	JP 2001-283571	20010918
PRAI	JP 2001-283571		20010918		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003089768	ICM	C09D183-02
	ICS	C09D001-00; C09D005-25; C09D183-04; C09D201-00; H01L021-312

AB The **composition** comprises (A) **silica** precursors containing (1)
Si(OR)₄, their hydrolyzates, and/or their polycondensation products and

- (2) R22Si(OR1)2 and/or R23Si(OR1), their hydrolyzates, and/or their polycondensation products (R1, R2 = monovalent organic residue) to satisfy Si molar fraction in (2) to total Si in (1) and (2) 1-50 mol%, (B) linear or branched block copolymer-containing organic polymers, and (C) solvents of alcs., ketones, amides, and/or esters. The porous insulating film is manufactured by coating a substrate with the **composition**, forming a **silica** /organic polymer composite film by gelation of the **silica** precursors, and removing the organic polymers from the composite film. The porous film has low specific dielec. constant and high durability in **chemical mech. polishing** in Cu wiring process for semiconductor device fabrication and scarcely generates pollutant gases in via-hole formation.
- ST semiconductor device wiring porous **silica** insulator film;
silica precursor org polymer coating insulator manuf; alkoxyasilane
block copolymer coating **silica** film manuf
- IT Silanes
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkoxy; alkoxyasilane- and block copolymer-containing coating **compn**
. for manufacture of porous insulating **silica** film in wiring
structure in semiconductor device)
- IT Dielectric films
Semiconductor devices
Sol-gel processing
(alkoxyasilane- and block copolymer-containing coating **composition** for
manufacture of porous insulating **silica** film in wiring structure
in semiconductor device)
- IT Polyoxyalkylenes, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical,
engineering or chemical process); PROC (Process); USES (Uses)
(block; alkoxyasilane- and block copolymer-containing coating **compn**
. for manufacture of porous insulating **silica** film in wiring
structure in semiconductor device)
- IT Porous materials
(films; alkoxyasilane- and block copolymer-containing coating **compn**
. for manufacture of porous insulating **silica** film in wiring
structure in semiconductor device)
- IT Films
(porous; alkoxyasilane- and block copolymer-containing coating **compn**
. for manufacture of porous insulating **silica** film in wiring
structure in semiconductor device)
- IT Polysiloxanes, preparation
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(silicate-, **silica** precursor; alkoxyasilane- and block
copolymer-containing coating **composition** for manufacture of porous
insulating **silica** film in wiring structure in semiconductor
device)
- IT 106392-12-5, Polyethylene glycol-polypropylene glycol block
copolymer
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical,
engineering or chemical process); PROC (Process); USES (Uses)
(alkoxyasilane- and block copolymer-containing coating **composition** for
manufacture of porous insulating **silica** film in wiring structure
in semiconductor device)
- IT 7631-86-9P, Silica, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM
(Technical or engineered material use); PREP (Preparation); USES (Uses)
(alkoxyasilane- and block copolymer-containing coating **composition** for
manufacture of porous insulating **silica** film in wiring structure
in semiconductor device)

IT 88029-68-9P, Dimethyldiethoxysilane-tetraethoxysilane copolymer
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(silica precursor; alkoxy silane- and block copolymer-containing
coating **composition** for manufacture of porous insulating silica
film in wiring structure in semiconductor device)

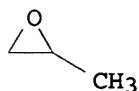
IT 78-10-4, Tetraethoxysilane 1825-62-3, Trimethylethoxysilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(silica precursor; alkoxy silane- and block copolymer-containing
coating **composition** for manufacture of porous insulating silica
film in wiring structure in semiconductor device)

IT 106392-12-5, Polyethylene glycol-polypropylene glycol block
copolymer
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical,
engineering or chemical process); PROC (Process); USES (Uses)
(alkoxy silane- and block copolymer-containing coating **composition** for
manufacture of porous insulating silica film in wiring structure
in semiconductor device)

RN 106392-12-5 HCAPLUS
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O



IT 7631-86-9P, Silica, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM
(Technical or engineered material use); PREP (Preparation); USES (Uses)
(alkoxy silane- and block copolymer-containing coating **composition** for
manufacture of porous insulating silica film in wiring structure
in semiconductor device)

RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L39 ANSWER 19 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:570697 HCAPLUS
DN 137:133148

ED Entered STN: 01 Aug 2002
 TI Reduction of surface roughness during chemical mechanical planarization (CMP) in electronic device fabrication
 IN Kramer, Stephen J.; Meikle, Scott G.
 PA Micron Technology, Inc., USA
 SO U.S., 14 pp., Cont.-in-part of U.S. Ser. No. 252,022.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM H01L021-00
 INCL 438692000
 CC 76-3 (Electric Phenomena)
 Section cross-reference(s): 66

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6426295	B1	20020730	US 2000-584468	20000531
	US 6409936	B1	20020625	US 1999-252022	19990216
	US 2002182868	A1	20021205	US 2002-209035	20020730
	US 6630403	B2	20031007		
PRAI	US 1999-252022	A2	19990216		
	US 2000-584468	A1	20000531		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6426295	ICM	H01L021-00
	INCL	438692000
US 6426295	NCL	438/692.000; 216/038.000; 216/088.000; 216/089.000; 252/079.100; 438/693.000; 438/745.000
	ECLA	B24B037/04I; B24B057/02; C09G001/02
US 6409936	NCL	252/079.100; 216/088.000; 216/089.000; 216/090.000; 216/091.000; 216/092.000; 252/079.200; 252/079.300; 252/079.400; 252/079.500; 252/363.500; 438/690.000; 438/691.000; 438/692.000; 438/693.000; 451/285.000; 451/286.000; 451/287.000; 451/288.000
	ECLA	B24B037/04I; B24B057/02; C09G001/02
US 2002182868	NCL	438/692.000
	ECLA	B24B037/04I; B24B057/02; C09G001/02

AB Improved methods, **compsns.** and structures formed therefrom are provided that allow for reduction of roughness in layers (e.g., oxide layers) of a planarized wafer. In one such embodiment, improved methods, **compsns.** and structures formed therefrom for reduction of roughness in layers (e.g., oxide layers) of a planarized wafer were used in conjunction with high modulus polyurethane pads. In one embodiment, improved methods, **compsns.** and structures formed therefrom are provided that reduce rough interlayer dielec. (ILD) conditions for a wafer during **CMP** processing of such a wafer. Accordingly, this reduction of rough ILD reduces chatter scratches which are scratches that emanate from regions of a wafer that has undergone **CMP** processing. Advantageously, reduction in chatter scratching reduces cracking (i.e., wormholing) in layers of the wafer that were planarized. Therefore, reduction in cracking decreases access of cleaning chemistries to underlying structures of the wafer during subsequent chemical cleaning of the planarized wafer, thereby reducing damage to such underlying structures from these cleaning chemistries (e.g., reduction of metal voids in underlying metal structures). Embodiments of a method for forming a microelectronic substrate include mixing a surfactant at least 100 ppm to **slurries** to form a **polishing** solution. The method also includes chemical-mech. planarizing of the semiconductor wafer using the **polishing** solution. Addnl., embodiments of a **polishing** solution for chemical-mech. planarizing a microelectronic

substrate includes slurries and a surfactant at least 100 ppm to the slurries.

ST chem mech polishing slurry
surfactant electronic device fabrication

IT Polishing
(chemical-mech.; reduction of surface roughness during chemical mech. planarization (CMP) in electronic device fabrication)

IT Surfactants
(nonionic; reduction of surface roughness during chemical mech. planarization (CMP) in electronic device fabrication)

IT Polymers, uses
Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polishing pads; reduction of surface roughness during chemical mech. planarization (CMP) in electronic device fabrication)

IT Crack (fracture)
Dielectric films
Slurries
Surface roughness
Surfactants
(reduction of surface roughness during chemical mech. planarization (CMP) in electronic device fabrication)

IT 7631-86-9, Silica, uses 9002-92-0, Polyoxyethylene lauryl ether 9004-95-9, Polyoxyethylene cetyl ether 9004-98-2, Polyoxyethylene oleyl ether 9005-00-9, Polyoxyethylene stearyl ether
RL: NUU (Other use, unclassified); USES (Uses)
(reduction of surface roughness during chemical mech. planarization (CMP) in electronic device fabrication)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; McGraw-Hill Concise Encyclopedia of Science & Technology, Fourth Edition 1998, P1931
- (2) Blackwell; US 5320706 A 1994
- (3) Cook; US 5489233 A 1996
- (4) Griesshammer; US 4070797 A 1978
- (5) Griesshammer; US 4156619 A 1979
- (6) Grover; US 5759917 A 1998 HCAPLUS
- (7) Hiemenz, P; Principles of Colloid and Surface Chemistry, 2nd ed 1986, P428
- (8) Hosali; US 5738800 A 1998
- (9) Huynh; US 5704987 A 1998
- (10) Isobe; US 5616212 A 1997 HCAPLUS
- (11) Lyons; US 5930645 A 1999 HCAPLUS
- (12) Olmstead; US 5193316 A 1993
- (13) Shamouillan; US 5584146 A 1996
- (14) Sherman; US 4724042 A 1988 HCAPLUS
- (15) Sova; US 4563257 A 1986 HCAPLUS
- (16) Wang; US 6046112 A 2000 HCAPLUS

IT 7631-86-9, Silica, uses
RL: NUU (Other use, unclassified); USES (Uses)
(reduction of surface roughness during chemical mech. planarization (CMP) in electronic device fabrication)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L39 ANSWER 20 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2002:397875 HCAPLUS
 DN 136:394390
 ED Entered STN: 28 May 2002
 TI Chemical mechanical **polishing slurries** with balanced
 high **polishing** speed and low erosion, and manufacture of
 semiconductor devices using them in damascece process
 IN Nanpuku, Manabu; Yano, Hiroyuki
 PA Toshiba Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09K003-14
 ICS C09K003-14; B24B037-00; H01L021-304; H01L021-306
 CC 76-3 (Electric Phenomena)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002155268	A2	20020528	JP 2000-352451	20001120
PRAI	JP 2000-352451		20001120		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP	2002155268	ICM	C09K003-14
		ICS	C09K003-14; B24B037-00; H01L021-304; H01L021-306
AB	The slurry comprises a solvent, abrasives , a 1st surfactant , and a 2nd surfactant . The surfactants are preferably nonionic or those with the same polarity as each other, and the abrasives are preferably nonionic or those with the same polarity as the surfactants .		
ST	chem mech polishing slurry semiconductor damascece;		
IT	abrasive slurry surfactant CMP reduced erosion Complexing agents Oxidizing agents Semiconductor device fabrication Surfactants (CMP slurry with balanced high polishing speed and low erosion for damascece processes in semiconductor device fabrication)		
IT	Polishing materials		
	(abrasive pastes; CMP slurry with balanced high polishing speed and low erosion for damascece processes in semiconductor device fabrication)		
IT	Polyoxyalkylenes, uses		
	RL: NUU (Other use, unclassified); USES (Uses) (alkyl allyl ethers, alkyl amines , surfactant; CMP slurry with balanced high polishing speed and low erosion for damascece processes in semiconductor device fabrication)		
IT	Sulfates, uses		
	RL: NUU (Other use, unclassified); USES (Uses) (alkyl derivs., surfactant; CMP slurry with balanced high polishing speed and low erosion for damascece processes in semiconductor device fabrication)		
IT	Quaternary ammonium compounds, uses		
	RL: NUU (Other use, unclassified); USES (Uses) (alkyltrimethyl, surfactant; CMP slurry with balanced high polishing speed and low erosion for damascece processes in semiconductor device fabrication)		
IT	Polishing		

(chemical-mech.; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT **Abrasives**

(**polishing** pastes; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT **Amines, uses**

RL: NUU (Other use, unclassified); USES (Uses)
(salts, alkyl derivs., surfactant; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT **Fatty acids, uses**

RL: NUU (Other use, unclassified); USES (Uses)
(salts, surfactant; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT **Carbohydrates, uses**

RL: NUU (Other use, unclassified); USES (Uses)
(sugar esters, surfactant; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT 56-40-6, Glycine, uses 56-41-7, Alanine, uses 59-67-6, Nicotinic acid, uses 73-22-3, Tryptophane, uses 98-98-6, Picolinic acid 110-15-6, Succinic acid, uses 141-82-2, Malonic acid, uses 144-62-7, Oxalic acid, uses

RL: NUU (Other use, unclassified); USES (Uses)
(additive; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT 14265-44-2, Phosphate, uses

RL: NUU (Other use, unclassified); USES (Uses)
(alkyl derivs., surfactant; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT 89-00-9, Quinolinic acid 93-10-7, Quinaldic acid

RL: NUU (Other use, unclassified); USES (Uses)
(complexing agent; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT 7722-84-1, Hydrogen peroxide, uses 7727-21-1, Potassium persulfate 7727-54-0, Ammonium persulfate 10421-48-4, Ferric nitrate 15078-94-1, Ammonium cerium nitrate

RL: NUU (Other use, unclassified); USES (Uses)
(oxidant; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

IT 56-81-5D, Glycerin, esters 1331-61-9, Dodecylbenzenesulfonic acid ammonium salt 1875-92-9D, Dimethylbenzyl ammonium chloride, alkyl derivs. 9002-92-0, Poly(oxyethylene) lauryl ether 12441-09-7D, Sorbitan, esters 25322-68-3D, alkyl allyl ethers, alkyl amines 27177-77-1, Dodecylbenzenesulfonic acid potassium salt 94653-96-0D, Naphthalenesulfonic acid potassium salt, alkyl derivs.

RL: NUU (Other use, unclassified); USES (Uses)
(surfactant; **CMP slurry** with balanced high **polishing** speed and low erosion for damascene processes in semiconductor device fabrication)

DNC C2002-046084

TI **Chemical mechanical polishing slurry composition** for polishing substrate comprises abrasive and oxidizing agent.

DC G04 P61

IN MAHULIKAR, D; PASQUALONI, A M

PA (ARCH-N) ARCH SPECIALTY CHEM INC; (PLAN-N) PLANAR SOLUTIONS LLC

CYC 25

PI WO 2002004573 A2 20020117 (200219)* EN 18 C09K000-00
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
W: JP KR SG

US 6468913 B1 20021022 (200273) H01L021-00

EP 1354017 A2 20031022 (200370) EN C09K003-00

R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

KR 2003059070 A 20030707 (200377) C09K003-14

JP 2004502860 W 20040129 (200413) 32 C09K003-14

TW 574347 A 20040201 (200453) C09K013-00

ADT WO 2002004573 A2 WO 2001-US10491 20010402; US 6468913 B1 US 2000-611702
20000708; EP 1354017 A2 EP 2001-922992 20010402, WO 2001-US10491 20010402;
KR 2003059070 A KR 2003-700216 20030107; JP 2004502860 W WO 2001-US10491
20010402, JP 2002-509430 20010402; TW 574347 A TW 2001-113232 20010531

FDT EP 1354017 A2 Based on WO 2002004573; JP 2004502860 W Based on WO
2002004573

PRAI US 2000-611702 20000708

IC ICM C09K000-00; C09K003-00; C09K003-14; C09K013-00; H01L021-00

ICS B24B037-00; C09G001-00; H01L021-304

AB WO 200204573 A UPAB: 20040920

NOVELTY - **Chemical mechanical polishing slurry composition** comprises an abrasive

including silica, alumina, ceria, or their mixtures; and an oxidizing agent. The slurry has an effective shelf life of at least 30 days.

DETAILED DESCRIPTION - **Chemical mechanical polishing slurry composition** comprises an abrasive including silica, alumina, ceria, or their mixtures; and an oxidizing agent including hydrogen peroxide, potassium ferricyanide, potassium dichromate, potassium iodate, potassium bromate, vanadium trioxide, hypochlorous acid, sodium hypochlorite, potassium hypochlorite, calcium hypochlorite, magnesium hypochlorite, ferric nitrate, ammonium persulfate, potassium permanganate, or their mixtures. The slurry has an effective shelf life of at least 30 days. INDEPENDENT CLAIMS are also included for (A) a method of polishing a substrate, which comprises providing a substrate with at least one metal layer, applying the inventive slurry composition, and chemically mechanically polishing the substrate with the slurry; and (B) a method of preparing a chemical mechanical polishing slurry, which comprises mixing an abrasive with an oxidizer, and storing the slurry prior to use.

USE - The slurry composition is used for chemical mechanical polishing of metal substrates on semiconductor wafers.

ADVANTAGE - The inventive slurry composition is ready-to-use and stable over long term storage at ambient conditions. Its use in a chemical mechanical polishing process promotes high removal rates, low defect densities, and reduced amounts of dishing and erosion.

Dwg.0/0

FS CPI GMPI

FA AB

MC CPI: G04-B04

L39 ANSWER 22 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2003-185553 [19] WPIX

DNN N2003-146128 DNC C2003-049112

TI **Chemical/mechanical polishing slurry**

, used in producing shallow trench insulation in silicon wafer with oxide and nitride coatings, comprises **abrasive** particles in aqueous solution containing two different passivating agents.

DC A85 E19 G02 L02 L03 P61 U11

IN HAH, S; LEE, J; YOON, B; HA, S R; LEE, J D; LEE, J W; YOON, B E

PA (SMSU) SAMSUNG ELECTRONICS CO LTD; (HAHS-I) HAH S; (LEEJ-I) LEE J;
(YOON-I) YOON B

CYC 6

PI	DE 10160174	A1	20021017	(200319)*	16	C09G001-02
	JP 2002313760	A	20021025	(200319)	11	H01L021-304
	KR 2002077636	A	20021012	(200319)		H01L021-304
	US 2003022499	A1	20030130	(200319)		H01L021-302
	US 6540935	B2	20030401	(200324)		C09K013-00
	US 2003148616	A1	20030807	(200358)		C03C025-68
	SG 102648	A1	20040326	(200427)		C09K013-00
	TW 573001	A	20040121	(200453)		C09K003-14
	KR 459696	B	20041203	(200525)		H01L021-304
	US 6914001	B2	20050705	(200544)		H01L021-302

ADT DE 10160174 A1 DE 2001-10160174 20011207; JP 2002313760 A JP 2001-392645 20011225; KR 2002077636 A KR 2001-25873 20010511; US 2003022499 A1 US 2001-826169 20010405; US 6540935 B2 US 2001-826169 20010405; US 2003148616 A1 Div ex US 2001-826169 20010405, US 2003-351539 20030127; SG 102648 A1 SG 2001-7788 20011212; TW 573001 A TW 2001-129490 20011129; KR 459696 B KR 2001-25873 20010511; US 6914001 B2 Div ex US 2001-826169 20010405, US 2003-351539 20030127

FDT US 2003148616 A1 Div ex US 6540935; KR 459696 B Previous Publ. KR 2002077636; US 6914001 B2 Div ex US 6540935

PRAI US 2001-826169 20010405; US 2003-351539 20030127

IC ICM C03C025-68; C09G001-02; C09K003-14; C09K013-00; H01L021-302;
H01L021-304

ICS B24B037-00; B24B057-02; H01L021-461

AB DE 10160174 A UPAB: 20030320

NOVELTY - Chemical/mechanical polishing

slurry comprises an aqueous solution containing **abrasive** particles and 2 different passivating agents.

USE - The **slurry** is used in rotary **chemical/mechanical polishing (CMP)** with a

polishing pad; and in shallow trench insulation, comprising coating a semiconductor substrate with cushion oxide and silicon nitride (SiN), making trenches through these layers into the substrate, forming an insulating oxide film over the trenches and removing the SiN layer and this film down to the plane of the SiN layer by **CMP** (all claimed). The **CMP** is used in making microelectronic devices.

ADVANTAGE - The oxide/silicon nitride selectivity of the aqueous solution is not less than 50:1 (claimed), which is better than usual.

DESCRIPTION OF DRAWING(S) - The drawing shows the **chemical/mechanical polishing (CMP)** stage of the process flow diagram. (Drawing includes non-English language text).

Contact surface of wafer with **polishing** pad 802

Supply **CMP slurry** containing **abrasive** and the first and second passivating agents 803

Rotate surface of wafer relative to surface of **polishing** pad to remove oxide coating 804

Dwg.8/9

FS CPI EPI GMPI
 FA AB; GI; DCN
 MC CPI: A11-B05; A12-E04; A12-E07C; E05-A; E05-G09C; E10-A09B4; E10-A09B5;
 E10-A22; E10-C02F; E10-C04; E31-K05D; E31-K05E; E31-P03; E31-P06D;
 E34-C02; E34-E; E35-G; E35-K02; E35-L; G02-A05B; L02-F; L04-C27
 EPI: U11-A10; U11-C06A1A

L39 ANSWER 23 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:338649 HCAPLUS
 DN 134:341709
 ED Entered STN: 11 May 2001
 TI Organic additives for chemical-mechanical **polishing slurries** for Ta barrier layers in integrated circuits
 IN Sahota, Kashmir S.; Schonauer, Diana M.; Avanzino, Steven C.
 PA Advanced Micro Devices, Inc., USA
 SO PCT Int. Appl., 38 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C09G001-02
 CC 42-13 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 76

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001032794	A1	20010510	WO 2000-US30354	20001103
	W: CN, JP, KR, SG				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	US 2002005504	A1	20020117	US 1999-434146	19991104
	US 6503418	B2	20030107		
	EP 1246879	A1	20021009	EP 2000-976902	20001103
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2003514374	T2	20030415	JP 2001-535479	20001103
PRAI	US 1999-434146	A	19991104		
	WO 2000-US30354	W	20001103		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001032794	ICM	C09G001-02
WO 2001032794	ECLA	C09G001/02; C09K003/14D2
US 2002005504	NCL	252/079.100
	ECLA	C09G001/02; C09K003/14D2

AB A Ta barrier **slurry** for Chemical-Mech. **Polishing** (CMP) during copper metalization contains an organic additive which suppresses formation of ppts. and copper staining. The organic additive is chosen from a class of compds. which form multiple strong adsorbent bonds to the surface of silica or copper, which provide a high degree of surface coverage onto the reactive species, thereby occupying potential reaction sites, and which are sized to sterically hinder the collisions between two reactant mols. which result in new bond formation.

ST org additive **polishing slurry** integrated circuitIT **Surfactants**

(nonionic; organic additives for chemical-mech. **polishing slurries** for Ta barrier layers in integrated circuits)

IT **Abrasives**

Corrosion inhibitors

Integrated circuits

Polishing materials

(organic additives for chemical-mech. **polishing slurries**
for Ta barrier layers in integrated circuits)

IT **Amines**, uses

Polyoxyalkylenes, uses

RL: MOA (Modifier or additive use); USES (Uses)

(organic additives for chemical-mech. **polishing slurries**
for Ta barrier layers in integrated circuits)

IT 7631-86-9, Silica, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(**abrasive**; organic additives for chemical-mech. **polishing slurries**
for Ta barrier layers in integrated circuits)

IT 50-70-4, Sorbitol, uses 56-81-5, Glycerol, uses 107-21-1, Ethylene glycol, uses 111-46-6, Di(ethylene glycol), uses 9002-89-5, Polyvinyl alcohol 9002-92-0, Polyoxyethylene lauryl ether 9003-05-8, Polyacrylamide 9004-95-9, Polyoxyethylene cetyl ether 9016-45-9, Nonylphenol polyethylene oxide 9063-89-2, Poly(ethylene oxide) octylphenol ether 25067-34-9, Ethylene-vinyl alcohol copolymer 25213-24-5, Vinyl alcohol-vinyl acetate copolymer 25322-68-3, Poly(ethylene glycol) 25791-96-2 31694-55-0, Polyethylene glycol glycerol ether 156048-32-7, Dimethylsilanediol-ethylene oxide co-polymer

RL: MOA (Modifier or additive use); USES (Uses)

(organic additives for chemical-mech. **polishing slurries**
for Ta barrier layers in integrated circuits)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Gomez, J; US 5897375 A 1999

(2) Higuchi, M; US 5770095 A 1998 HCAPLUS

L39 ANSWER 24 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:469560 HCAPLUS

DN 135:63058

ED Entered STN: 29 Jun 2001

TI Cleaning **compositions** for **chemical mechanical polishing slurry** of semiconductors

IN Yamana, Masahide; Shudo, Shinsei

PA Advantech K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L021-304

ICS B24B037-00; C11D001-00; C11D003-14

CC 46-6 (Surface Active Agents and Detergents)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001176825	A2	20010629	JP 1999-356160	19991215
PRAI	JP 1999-356160		19991215		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 2001176825	ICM	H01L021-304
	ICS	B24B037-00; C11D001-00; C11D003-14

AB The title **compns.** contain 1-70% **abrasive** particles free from alkali metal ions (e.g., silica with average diameter 25 µm) and 1-50% **nonionic surfactants** (e.g., polyoxyethylene monooleate, polyoxyethylene propylene glycol, polyoxyethylene monostearate) as aqueous emulsions.

ST semiconductor chem mech polishing

slurry cleaning compn; silica abrasive
 particle semiconductor polishing slurry cleaning;
 nonionic surfactant semiconductor polishing
 slurry cleaning
 IT Emulsions
 Scouring agents
 Semiconductor materials
 (cleaning compns. for chemical mech.
 polishing slurry of semiconductors)
 IT Surfactants
 (nonionic; cleaning compns. for chemical
 mech. polishing slurry of semiconductors)
 IT Polishing
 (of semiconductors; cleaning compns. for chemical
 mech. polishing slurry of semiconductors)
 IT Abrasives
 (particles; cleaning compns. for chemical mech
 . polishing slurry of semiconductors)
 IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (abrasive particles; cleaning compns. for
 chemical mech. polishing slurry of
 semiconductors)
 IT 9003-11-6, Polyoxyethylene propylene glycol ether 9004-96-0,
 Polyoxyethylene monooleate 9004-99-3, Polyoxyethylene monostearate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonionic surfactants; cleaning compns.
 for chemical mech. polishing slurry
 of semiconductors)
 IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (abrasive particles; cleaning compns. for
 chemical mech. polishing slurry of
 semiconductors)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L39 ANSWER 25 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:557817 HCAPLUS
 DN 135:115843
 ED Entered STN: 03 Aug 2001
 TI Polishing compositions for magnetic disks
 IN Shemo, David M.; Rader, W. Scott; Owaki, Toshiki
 PA Fujimi America Inc., USA
 SO Brit. UK Pat. Appl., 36 pp.
 CODEN: BAXXDU
 DT Patent
 LA English
 IC ICM C09G001-02
 CC 77-8 (Magnetic Phenomena)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	GB 2354525	A1	20010328	GB 2000-23101	20000920
	GB 2354525	B2	20031022		

US 6258140	B1	20010710	US 1999-404993	19990927
CN 1289811	A	20010404	CN 2000-131713	20000927
CN 1134521	B	20040114		
JP 2001155332	A2	20010608	JP 2000-294874	20000927
PRAI US 1999-404993	A	19990927		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 2354525	ICM	C09G001-02
GB 2354525	ECLA	C09G001/02; C09K003/14D2; G11B005/84B
US 6258140	NCL	051/308.000; 106/003.000; 510/165.000; 510/167.000
	ECLA	C09G001/02; C09K003/14D2; G11B005/84B
AB	<p>A polishing composition for polishing a memory hard disk having a high stock removal rate and capable of providing a polished surface having a small surface roughness and preventing formation of microprotrusions, micropits or other surface defects, comprises the following components: (a) 0.1-50 wt% in the total amount of the polishing composition, of ≥ 1 abrasive particles selected from silicon dioxide, aluminum oxide, cerium oxide, zirconium oxide, titanium oxide, silicon nitride and manganese dioxide; (b) 0.0001-3.0 wt% of ≥ 1 polishing resistance-reducing agent selected from a surfactant, a water-soluble polymer and a polyelectrolyte, (c) 0.001-40 wt% of ≥ 1 polishing accelerator selected from an inorg. acid, an organic acid and their aluminum, iron, nickel and cobalt salts (such as aluminum nitrate, ascorbic acid, sulfuric acid), and (d) water.</p>	
ST	<p>magnetic disk polishing compn; silicon dioxide abrasive polishing; polishing resistance reducing agent; accelerator polishing</p>	
IT	<p>Salts, uses RL: TEM (Technical or engineered material use); USES (Uses) (Al, Fe, Ni, Co; polishing compns. for magnetic disks)</p>	
IT	<p>Acrylic polymers, uses RL: TEM (Technical or engineered material use); USES (Uses) (ammonium salt; polishing compns. for magnetic disks)</p>	
IT	<p>Surfactants (anionic; polishing compns. for magnetic disks)</p>	
IT	<p>Surfactants (cationic; polishing compns. for magnetic disks)</p>	
IT	<p>Amines, uses RL: TEM (Technical or engineered material use); USES (Uses) (coco alkyl, ethoxylated, quaternary ammonium chloride; polishing compns. for magnetic disks)</p>	
IT	<p>Amines, uses RL: TEM (Technical or engineered material use); USES (Uses) (ethoxylated, quaternary ammonium salt; polishing compns. for magnetic disks)</p>	
IT	<p>Surfactants (nonionic; polishing compns. for magnetic disks)</p>	
IT	<p>Sulfonic acids, uses RL: TEM (Technical or engineered material use); USES (Uses) (polishing accelerator; polishing compns. for magnetic disks)</p>	
IT	<p>Abrasives Magnetic disks Polishing Polishing materials</p>	

Polyelectrolytes

Slurries

(polishing compns. for magnetic disks)

- IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polishing compns. for magnetic disks)
- IT Amines, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(tallow alkyl, ethoxylated; polishing compns. for magnetic disks)
- IT 7631-86-9, Colloidal silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal; polishing compns. for magnetic disks)
- IT 50-21-5, Lactic acid, uses 50-81-7, Ascorbic acid, uses 56-40-6, Glycine, uses 56-86-0, Glutamic acid, uses 77-92-9, Citric acid, uses 79-14-1, Glycolic acid, uses 87-69-4, Tartaric acid, uses 90-64-2, Mandelic acid 110-15-6, Succinic acid, uses 141-82-2, Malonic acid, uses 473-81-4, Glyceric acid 526-95-4, Gluconic acid 547-67-1, Nickel oxalate 814-87-9, Aluminum oxalate 2338-05-8, Iron citrate 6915-15-7, Malic acid 7050-19-3, Ammonium iron citrate 7446-70-0, Aluminum chloride, uses 7601-90-3, Perchloric acid, uses 7646-79-9, Cobalt chloride, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7705-08-0, Iron chloride, uses 7718-54-9, Nickel chloride, uses 7784-25-0, Ammonium aluminum sulfate 7786-81-4, Nickel sulfate 10043-01-3, Aluminum sulfate 10043-35-3, Boric acid, uses 10045-89-3, Ammonium iron sulfate 10124-43-3, Cobalt sulfate 10124-49-9, Iron sulfate 10141-05-6, Cobalt nitrate 13138-45-9, Nickel nitrate 13473-90-0, Aluminum nitrate 13637-71-3, Nickel perchlorate 14013-86-6, Iron nitrate 14452-39-2, Aluminumperchlorate 19297-92-8, Ammonium iron oxalate 22605-92-1, Nickel citrate 31142-56-0, Aluminum citrate 38023-20-0, Iron hydroxide perchlorate (Fe(OH)(ClO₄)₂) 49599-05-5, Ammonium aluminum citrate
RL: TEM (Technical or engineered material use); USES (Uses)
(polishing accelerator; polishing compns. for magnetic disks)
- IT 60-00-4D, Ethylenediaminetetraacetic acid, Fe, Ni, Co complex, uses 67-42-5D, Fe, Ni, Co complex 67-43-6D, Diethylenetriaminepentaacetic acid, Fe, Ni, Co complex 93-62-9D, Fe, Ni, Co complex 139-13-9D, Nitrilotriacetic acid, Fe, Ni, Co complex 150-25-4D, Dihydroxyethyl glycine, Fe, Ni, Co complex 150-39-0D, Hydroxyethylethylenediaminetriacetic acid, Fe, Ni, Co complex 869-52-3D, Fe, Ni, Co complex 1306-38-3, Cerium oxide, uses 1313-13-9, Manganese dioxide, uses 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide, uses 4408-81-5D, Propylenediaminetetraacetic acid, Fe, Ni, Co complex 9002-89-5, Polyvinyl alcohol 9003-01-4, Polyacrylic acid 12033-89-5, Silicon nitride, uses 13463-67-7, Titanium oxide, uses 25322-68-3, Polyethylene oxide 162362-34-7
RL: TEM (Technical or engineered material use); USES (Uses)
(polishing compns. for magnetic disks)
- L39 ANSWER 26 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2001-168335 [17] WPIX
DNN N2001-121419 DNC C2001-050197
TI **Chemical-mechanical polishing slurry**
used in semiconductor device planarization has particles uniformly dispersed in an aqueous medium with specified surface area, an aggregate size distribution and an aggregate diameter.
- DC A25 A26 A85 L03 M14 P61 U11
IN BURKE, P A; LACK, C D; LUO, Q; SACHAN, V; THOMAS, T M; YE, Q C; YE, Q

PA (RODE-N) RODEL HOLDINGS INC

CYC 31

PI WO 2001002134 A1 20010111 (200117)* EN 33 B24B001-00

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: CN JP KR SG

EP 1177068 A1 20020206 (200218) EN B24B001-00

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT

RO SE SI

TW 452523 A 20010901 (200240) B24B001-00

US 6447373 B1 20020910 (200263) B24B001-00

KR 2002035826 A 20020515 (200273) H01L021-304

JP 2003503862 W 20030128 (200309) 34 H01L021-304

ADT WO 2001002134 A1 WO 2000-US17046 20000621; EP 1177068 A1 EP 2000-943003
 20000621; WO 2000-US17046 20000621; TW 452523 A TW 2000-112525 20000626;
 US 6447373 B1 Provisional US 1999-142326P 19990703, US 2000-598377
 20000621; KR 2002035826 A KR 2002-700019 20020102; JP 2003503862 W WO
 2000-US17046 20000621, JP 2001-507608 20000621

FDT EP 1177068 A1 Based on WO 2001002134; JP 2003503862 W Based on WO
 2001002134

PRAI US 1999-142326P 19990703; US 2000-598377 20000621

IC ICM B24B001-00; H01L021-304

ICS B24B037-00; B24D003-34; C09K003-14; C09K013-00; H01L021-00;

H01L021-44

AB WO 200102134 A UPAB: 20010328

NOVELTY - **Chemical-mechanical polishing**

slurry has particles uniformly dispersed in an aqueous medium with
 a surface area of 40-430 m²/g, aggregate size distribution less than 1 mu
 m, mean aggregate diameter less than 0.4 mu m, and contains at least one
 ionic species which prevents a force sufficient to repel and overcome the
 van der Waals forces between particles. The particles form stage 1
 agglomerates greater than 1 mu m.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a
 method of **chemical-mechanical polishing** of a
 metal layer of a substrate by **chemical mechanical**
polishing a metal layer with the inventive **slurry**
 comprising particles dispersible in an aqueous medium. The medium has a
 static etch rate with respect to the metal layer of less than 75 Angstrom
 /min.

USE - The **slurry** is used in **chemical-**
mechanical polishing of a metal layer of a substrate,
 preferably in semiconductor device planarization, memory disk
polishing, and optics **polishing**. It can be used in
polishing dielectrics, including low k (dielectric constant)
 dielectrics, e.g. porous silica, or organic low k dielectrics,
 e.g. fluoro polymers or copolymers.

ADVANTAGE - The method provides an effective **polishing** to
 metal layers at desired **polishing** rates while minimizing surface
 imperfections and defects. The **slurries** have a low static etch
 rate and are metastable due to reversible formation of types of
 agglomerates. The agglomerates will not cause unacceptable
polishing defects and will de-agglomerate with simple agitation.

Dwg.0/6

FS CPI EPI GMPI

FA AB

MC CPI: A12-W12C; L04-C26; M14-A

EPI: U11-C06A1A

L39 ANSWER 27 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2001-158580 [16] WPIX

DNN N2001-115522 DNC C2001-046981

TI Manufacture of a semiconductor device on a wafer involves chemically treating the wafer by immersion in a solution and/or double sided scrubbing of the wafer with the solution.

DC L03 U11

IN AVANZINO, S C; SCHONAUER, D M; YANG, K

PA (ADMI) ADVANCED MICRO DEVICES INC

CYC 1

PI US 6177349 B1 20010123 (200116)* 7 H01L021-44

ADT US 6177349 B1 US 1998-206169 19981207

PRAI US 1998-206169 19981207

IC ICM H01L021-44

AB US 6177349 B UPAB: 20010323

NOVELTY - A semiconductor device is manufactured on a wafer by chemically treating the wafer surface with a solution containing ammonium fluoride, diammonium hydrogen citrate, triammonium citrate, a surfactant, and water by immersing the wafer in the solution and/or double sided brush scrubbing the wafer with the solution.

DETAILED DESCRIPTION - Manufacture of a semiconductor device on a wafer involves:

(a) forming a copper (Cu) or Cu alloy interconnection pattern comprising a dense array of spaced apart Cu or Cu alloy lines bordering an open dielectric field on a surface of the wafer; and

(b) chemically treating the wafer surface with a solution containing ammonium fluoride, diammonium hydrogen citrate, triammonium citrate, a surfactant, and water by immersing the wafer in the solution and/or double sided brush scrubbing the wafer with the solution.

USE - Manufacturing high speed integrated circuits having submicron features and high aspect ratio openings such as semiconductor devices with a design rule of 0.18 microns and under.

ADVANTAGE - Enables the formation of reliable Cu and/or Cu alloy interconnection while eliminating or substantially reducing the formation and/or growth of dendritics emanating from Cu or Cu alloy lines and substantially removing residual slurry particles in an efficient, cost effective manner.

Dwg.0/1

FS CPI EPI

FA AB

MC CPI: L04-C11C; L04-C26

EPI: U11-C05E1; U11-C06A1A

L39 ANSWER 28 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:291176 HCAPLUS

DN 132:302004

ED Entered STN: 05 May 2000

TI Chemical mechanical polishing slurry system having an activator solution

IN Mahulikar, Deepak

PA Arch Specialty Chemicals, Inc., USA

SO PCT Int. Appl., 21 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C09K003-14

ICS C09G001-02; B24B001-00

CC 76-3 (Electric Phenomena)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	WO 2000024842	A1	20000504	WO 1999-US24864	19991022
	W: JP, KR, SG				

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE

EP 1124912 A1 20010822 EP 1999-955147 19991022

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, FI

JP 2002528903 T2 20020903 JP 2000-578398 19991022

US 6447563 B1 20020910 US 1999-425358 19991022

PRAI US 1998-105366P P 19981023

WO 1999-US24864 W 19991022

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2000024842	ICM	C09K003-14
	ICS	C09G001-02; B24B001-00
WO 2000024842	ECLA	C09G001/02; C09K003/14D2
US 6447563	NCL	051/309.000; 051/307.000; 051/308.000; 106/003.000; 252/079.200; 252/079.300; 252/079.400; 438/692.000; 438/693.000
	ECLA	C09G001/02; C09K003/14D2

AB This invention relates to a **CMP slurry** system for use in semiconductor device fabrication. The **slurry** system comprises 2 parts. The 1st part is a generic dispersion that contains only an **abrasive** and, optionally, a surfactant and a stabilizing agent. The generic dispersion can be used for **polishing** metals as well as interlayer dielects. The 2nd part is a novel activator solution comprising ≥ 2 components selected from: an oxidizer, acids, amines, chelating agents, F-containing compds., corrosion inhibitors, buffering agents, surfactants, biol. agents, and their mixts.

ST chem mech **polishing slurry** activator soln;
semiconductor device fabrication **CMP slurry**

IT Quaternary ammonium compounds, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(alkylbenzyltrimethyl, chlorides; chemical mech. **polishing slurry** system having activator solution containing)

IT Surfactants
(amphoteric; chemical mech. **polishing slurry** system having activator solution containing)

IT Surfactants
(anionic; chemical mech. **polishing slurry** system having activator solution containing)

IT Surfactants
(cationic; chemical mech. **polishing slurry** system having activator solution containing)

IT **Abrasives**
Buffers
Chelating agents
Corrosion inhibitors
Oxidizing agents
Stabilizing agents
Surfactants
(chemical mech. **polishing slurry** system having activator solution containing)

IT Acids, processes
Alkali metal fluorides
Alkaline earth fluorides
Amines, processes
Carboxylic acids, processes
Tannins
RL: PEP (Physical, engineering or chemical process); TEM (Technical or

- engineered material use); PROC (Process); USES (Uses)
 (chemical mech. **polishing slurry** system having
 activator solution containing)
- IT Semiconductor device fabrication
Slurries
 (chemical mech. **polishing slurry** system having
 activator solution for semiconductor device fabrication)
- IT **Polishing**
 (chemical-mech.; chemical mech. **polishing slurry** system
 having activator solution for semiconductor device fabrication)
- IT Electric insulators
 (interlayer; **slurry** system having activator solution for
 chemical-mech. **polishing** of)
- IT **Surfactants**
 (**nonionic**; chemical mech. **polishing slurry**
 system having activator solution containing)
- IT 50-21-5, Lactic acid, processes 56-34-8, Tetraethylammonium chloride
 60-00-4, Ethylenediaminetetraacetic acid, processes 64-18-6, Formic
 acid, processes 64-19-7, Acetic acid, processes 67-43-6,
 Diethylenetriaminepentaacetic acid 75-57-0, Tetramethylammonium chloride
 75-59-2, Tetramethylammonium hydroxide 77-92-9, Citric acid,
 processes 79-09-4, Propanoic acid, processes 87-69-4, Tartaric acid,
 processes 88-99-3, Phthalic acid, processes 95-14-7, 1H-Benzotriazole
 102-71-6, Triethanolamine, processes 103-76-4, 1-Piperazineethanol
 103-83-3D, Benzyldimethylamine, alkyl ammonium hydroxide derivs.
 107-92-6, Butanoic acid, processes 109-52-4, Pentanoic acid, processes
 111-14-8, Heptanoic acid 111-42-2, Diethanolamine, processes 112-05-0,
 Nonanoic acid 124-07-2, Octanoic acid, processes 136-85-6,
 6-Tolyltriazole 139-13-9, Nitrilotriacetic acid 141-43-5,
 Monoethanolamine, processes 142-62-1, Hexanoic acid, processes
 149-91-7, Gallic acid, processes 150-39-0, N-
 Hydroxyethylethylenediaminetriacetic acid 373-68-2, Tetramethylammonium
 fluoride 409-21-2, Silicon carbide (SiC), processes 526-95-4, Gluconic
 acid 627-74-7 929-06-6, Diethyleneglycolamine 1306-38-3, Ceria,
 processes 1310-58-3, Potassium hydroxide, processes 1314-23-4,
 Zirconium oxide, processes 1332-29-2, Tin oxide 1332-37-2, Iron oxide,
 processes 1336-21-6, Ammonium hydroxide ((NH₄)(OH)) 1341-49-7,
 Ammonium bifluoride 1344-28-1, Alumina, processes 3811-73-2, Sodium
 pyrrhione 4499-86-9, Tetrapropylammonium hydroxide 5810-42-4,
 Tetrapropylammonium chloride 6915-15-7, Malic acid 7647-01-0,
 Hydrochloric acid, processes 7664-38-2, Phosphoric acid, processes
 7664-39-3, Hydrofluoric acid, processes 7664-93-9, Sulfuric acid,
 processes 7681-52-9, Sodium hypochlorite 7697-37-2, Nitric acid,
 processes 7758-19-2, Sodium chlorite 7803-49-8, Hydroxylamine,
 processes 12033-89-5, Silicon nitride, processes 12125-01-8, Ammonium
 fluoride 13463-67-7, Titanium dioxide, processes 35914-36-4,
 Pyrogallol carboxylic acid 57178-78-6 68444-11-1 123155-80-6
 130397-22-7, Perfluoric acid 152275-68-8, 1-
 (2,3-Dicarboxypropyl)benzotriazole
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or
 engineered material use); PROC (Process); USES (Uses)
 (chemical mech. **polishing slurry** system having
 activator solution containing)
- IT 7631-86-9, Silica, processes
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or
 engineered material use); PROC (Process); USES (Uses)
 (colloidal; chemical mech. **polishing slurry** system
 having activator solution containing)
- IT 7429-90-5, Aluminum, processes 7440-25-7, Tantalum, processes
 7440-32-6, Titanium, processes 7440-33-7, Tungsten, processes

7440-50-8, Copper, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(slurry system having activator solution for chemical-mech. polishing of)

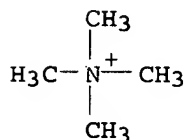
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Feller; US 5700383 A 1997 HCAPLUS
- (2) Kaufman; US 5783489 A 1998
- (3) Kido; US 5800577 A 1998 HCAPLUS
- (4) Neville; US 5527423 A 1996 HCAPLUS
- (5) Sandusky; US 5266088 A 1998 HCAPLUS
- (6) Yamada; US 5366542 A 1994 HCAPLUS

IT 75-59-2, Tetramethylammonium hydroxide 1336-21-6,
Ammonium hydroxide ((NH₄)(OH))
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(chemical mech. polishing slurry system having activator solution containing)

RN 75-59-2 HCAPLUS

CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



● OH⁻

RN 1336-21-6 HCAPLUS

CN Ammonium hydroxide ((NH₄)(OH)) (9CI) (CA INDEX NAME)

H₄N⁺-OH

L39 ANSWER 29 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:803851 HCAPLUS

DN 133:358135

ED Entered STN: 15 Nov 2000

TI Auxiliary agents and compositions containing water-soluble polymers for chemical-mechanical polishing of semiconductor substrates or devices

IN Ishibashi, Yoichi; Sowa, Toshiki; Fukumoto, Yasuhisa

PA Kao Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08L101-14

ICS B24B057-02; C08K003-00; C08L033-02; C08L071-02; C09K003-14;
H01L021-304

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000313815	A2	20001114	JP 1999-124498	19990430
PRAI	JP 1999-124498		19990430		

CLASS

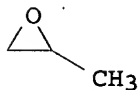
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2000313815	ICM	C08L101-14
	ICS	B24B057-02; C08K003-00; C08L033-02; C08L071-02; C09K003-14; H01L021-304

- AB The agents contain water-soluble polymers which show $\geq 50\%$ adsorption (at 25°) on the **abrasive** particles when 0.05 weight part of the polymers are added to 100 weight parts aqueous **slurry** containing 10 weight% **abrasive** particles having primary particle size 10-100 nm. Preferably, the polymers are polyoxyalkylenes or vinyl copolymers. High accuracy and good surface appearance are achieved by high-speed **polishing** of semiconductor substrates or devices with the **compsns.** containing the polymers above and **abrasives**.
- ST semiconductor **chem mech polishing**
polyoxyalkylene; water soluble vinyl polymer **abrasive**
semiconductor
- IT **Abrasives**
Semiconductor device fabrication
(**abrasive compsns.** containing water-soluble polymers for **chemical-mech. polishing** of semiconductor substrates or devices)
- IT Polyoxyalkylenes, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**abrasive compsns.** containing water-soluble polymers for **chemical-mech. polishing** of semiconductor substrates or devices)
- IT Polyoxyalkylenes, properties
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**acrylic; abrasive compsns.** containing water-soluble polymers for **chemical-mech. polishing** of semiconductor substrates or devices)
- IT **Polishing**
(**chemical-mech.; abrasive compsns.** containing water-soluble polymers for **chemical-mech. polishing** of semiconductor substrates or devices)
- IT 305383-98-6P 305383-99-7P 305384-01-4P 305384-02-5P 305384-04-7P
305384-06-9P 305384-08-1P 305807-95-8P, **Ethylene oxide-propylene oxide** block copolymer
monoacrylate-methacrylic acid graft copolymer ammonium salt 312314-72-0P
312314-75-3P 312746-76-2P 312746-77-3P 312746-82-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**abrasive compsns.** containing water-soluble polymers for **chemical-mech. polishing** of semiconductor substrates or devices)
- IT 25322-68-3, Polyethylene glycol 106392-12-5, **Ethylene oxide-propylene oxide** block copolymer
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**abrasive compsns.** containing water-soluble polymers for **chemical-mech. polishing** of semiconductor

substrates or devices)
IT 7631-86-9, Silica, uses 11129-18-3, Cerium oxide
RL: TEM (Technical or engineered material use); USES (Uses)
(abrasive; abrasive compns. containing
water-soluble polymers for chemical-mech.
polishing of semiconductor substrates or devices)
IT 106392-12-5, Ethylene oxide-propylene
oxide block copolymer
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(abrasive compns. containing water-soluble polymers for
chemical-mech. polishing of semiconductor
substrates or devices)
RN 106392-12-5 HCAPLUS
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O



IT 7631-86-9, Silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(abrasive; abrasive compns. containing
water-soluble polymers for chemical-mech.
polishing of semiconductor substrates or devices)
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L39 ANSWER 30 OF 34 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN
AN 2000-587095 [55] WPIX
DNN N2000-434529 DNC C2000-174953
TI Chemical mechanical polishing of low
dielectric constant polymer surface of integrated circuit wafer, utilizes
slurry comprising fine metal oxide particles uniformly dispersed
in stable aqueous medium.
DC A85 L03 U11
IN HOSALI, S D; SACHAN, V

PA (HOSA-I) HOSALI S D; (SACH-I) SACHAN V; (RODE-N) RODEL HOLDINGS INC
CYC 24
PI WO 2000049647 A1 20000824 (200055)* EN 18 H01L021-302
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: CN JP KR SG
US 2001013507 A1 20010816 (200149) C23F001-00
EP 1171906 A1 20020116 (200207) EN H01L021-302
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
KR 2001111261 A 20011217 (200238) H01L021-304
JP 2002537652 W 20021105 (200304) 16 H01L021-304
ADT WO 2000049647 A1 WO 2000-US3893 20000216; US 2001013507 A1 Provisional US
1999-120567P 19990218, CIP of US 2000-505042 20000216, US 2000-742853
20001221; EP 1171906 A1 EP 2000-913478 20000216, WO 2000-US3893 20000216;
KR 2001111261 A KR 2001-710397 20010816; JP 2002537652 W JP 2000-600297
20000216, WO 2000-US3893 20000216
FDT EP 1171906 A1 Based on WO 2000049647; JP 2002537652 W Based on WO
2000049647
PRAI US 1999-120567P 19990218; US 2000-505042 20000216;
US 2000-742853 20001221
IC ICM C23F001-00; H01L021-302; H01L021-304
ICS B24B037-00; C09K003-14; H01B013-00
AB WO 200049647 A UPAB: 20001102
NOVELTY - A low dielectric constant polymer surface of an integrated
circuit (IC) wafer is **chemically and mechanically**
polished with a **chemical mechanical**
polishing slurry comprising a colloiddally stable
dispersion of metal oxide particles. The particles have medium having
40-430 m2/g surface area, less than 1 mu m aggregate size distribution,
and less than 0.4 mu m mean aggregate diameter.
USE - The method is useful in **chemical mechanical**
polishing a low dielectric constant polymer surface of an
integrated circuit wafer or semiconductor devices. It is useful in
chemical mechanical planarization to remove uneven inter-level dielectric
(ILD) topography, layers of material, surface defects including scratches,
roughness, or contaminant particles, e.g. dirt or dust.
ADVANTAGE - The utilization of the **slurry** provides an
effective **polishing** while minimizing surface imperfections and
defects.
Dwg.0/0
FS CPI EPI
FA AB
MC CPI: A09-A03; A11-C04; A12-E07C; L04-B04; L04-C07; L04-C12E
EPI: U11-C05B9A; U11-C05D1; U11-C06A1A

L39 ANSWER 31 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 2
AN 2000:147946 HCAPLUS
DN 132:230589
ED Entered STN: 05 Mar 2000
TI Surfactant based alumina **slurries** for copper **CMP**
AU Babel, Ashok K.; Mackay, Raymond A.
CS Center for Advanced Materials Processing, Clarkson University, Potsdam,
NY, 13699, USA
SO Materials Research Society Symposium Proceedings (2000),
566 (Chemical-Mechanical Polishing--Fundamentals and Challenges), 135-142
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
CC 76-14 (Electric Phenomena)
Section cross-reference(s): 56, 57

AB The polishing of copper and examination of the polished surfaces were carried out with surfactant based alumina slurries to yield interesting results. Contrary to our expectation and previously reported research, some of the surfactant based alumina slurries resulted in higher copper polish rates when compared to the control. Of the nonionic surfactants, BrijR 35 was overall the most effective in both acidic and basic media. Ionics were effective at the pH for the appropriate charge type. For the range of surfactants studied, polish rates correlated with the HLB of the nonionic surfactants. The Hydrophile-Lipophile Balance (HLB) is related to the solubility of the surfactant, with higher number corresponding to increased water dispersibility. The surfactant BrijR 35, with the nonionic composition polyoxyethylene(23) lauryl ether, resulted in a dramatic improvement in the average surface uniformity when compared with the control at pH 2, and Sodium Dodecyl Sulfate produced even greater uniformity. Addnl., the effect of BrijR 35 surfactant was maintained with change in abrasive size, pad and polishing tool. In order to insure that surfactants are compatible with the chemical reagents contained in the com. slurries, two chemistries (ferric nitrate and hydrogen peroxide) were employed to test the efficiency of the selected surfactants in their presence. The results showed that the effect of surfactant on stability and removal rate is not influenced by the presence of the chems. Preliminary results indicate that surfactants can have a beneficial effect on both defects and post polish clean.

ST aluminum slurry surfactant abrasive copper CMP
IT Slurries

(alumina; surfactant based alumina slurries for copper CMP)

IT Surfactants
(in abrasive slurry; surfactant based alumina slurries for copper CMP)

IT Surfactants
(nonionic; surfactant based alumina slurries for copper CMP)

IT Abrasives
(slurry; surfactant based alumina slurries for copper CMP)

IT Hydrophile-lipophile balance value
(surfactant based alumina slurries for copper CMP)

IT 1344-28-1, Alumina, properties
RL: NUU (Other use, unclassified); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(slurry; surfactant based alumina slurries for copper CMP)

IT 7440-50-8, Copper, properties 7722-84-1, Hydrogen peroxide, properties
10421-48-4, Ferric nitrate
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(surfactant based alumina slurries for copper CMP)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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- (2) Anon; Private Communication from BJ Palla, D O Shah, M Biemann, and RK Singh
- (3) Anon; Private Communication from G Sabde
- (4) Babel, A; submitted for publication
- (5) Biemann, M; Electrochemical and Solid-state Letters 1999, V2(3), P148 HCAPLUS
- (6) Braun, A; Semiconductor International 1998, V21, P65

- (7) Campbell, D; CAMP Newsletter 1994, V10, P1
 (8) Free, M; Micro 1998, May, P29

L39 ANSWER 32 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1998:242076 HCAPLUS
 DN 128:285577
 ED Entered STN: 29 Apr 1998
 TI Cerium oxide **abrasive** and **polishing** of substrates
 IN Yoshida, Masato; Matsuzawa, Kiyoshi
 PA Hitachi Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09K003-14
 ICS C01F017-00; C08K003-22; C08L101-00; C09C001-68; H01L021-304
 CC 57-7 (Ceramics)
 Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10102040	A2	19980421	JP 1996-258769	19960930
PRAI	JP 1996-258769		19960930		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 10102040	ICM	C09K003-14
	ICS	C01F017-00; C08K003-22; C08L101-00; C09C001-68; H01L021-304

AB Ce oxide particles containing $\geq 90\%$ primary particles showing contours containing angular parts smaller than 120° in observation by transmission type electron microscope are dispersed in water, and the Ce oxide particle **slurry** is used as **abrasive** for **polishing** of substrates optionally having SiO₂ insulating layer. Optionally, the **slurry** contains a dispersant selected from water-soluble organic polymer, water-soluble anionic **surfactant**, water-soluble **nonionic surfactant**, and water-soluble amine.

ST cerium oxide **abrasive** silicon substrate **polishing**

IT Surfactants

(anionic, dispersant; **polishing** of silicon substrate by **slurry**-form cerium oxide **abrasive** containing)

IT Amines, uses

RL: TEM (Technical or engineered material use); USES (Uses)
 (dispersant; **polishing** of silicon substrate by **slurry**-form cerium oxide **abrasive** containing)

IT Surfactants

(**nonionic**, dispersant; **polishing** of silicon substrate by **slurry**-form cerium oxide **abrasive** containing)

IT Polishing

(of silicon substrate; **slurry**-form cerium oxide **abrasive** for)

IT Abrasives

(**slurry**-form cerium oxide **abrasive** for **polishing** silicon substrate)

IT 9003-03-6, Ammonium polyacrylate

RL: TEM (Technical or engineered material use); USES (Uses)
 (dispersant; **polishing** of silicon substrate by **slurry**-form cerium oxide **abrasive** containing)

IT 7631-86-9, Silica, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(**polishing** of silicon substrate coated with; **slurry**-form cerium oxide **abrasive** for)

IT 7440-21-3, Silicon, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**polishing** of substrates of; **slurry**-form cerium oxide **abrasive** for)

IT 1306-38-3, Cerium oxide, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**slurry**-form cerium oxide **abrasive** for **polishing** silicon substrate)

L39 ANSWER 33 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:248770 HCAPLUS
DN 126:350637
ED Entered STN: 17 Apr 1997
TI A study of post-chemical-mechanical-**polish** cleaning strategies
AU Huynh, C.; Rutten, M.; Cheek, R.; Linde, H.
CS Microelectronics Div., IBM, Essex Junction, VT, 05452, USA
SO Proceedings - Electrochemical Society (1997), 96-22 (Chemical Mechanical Planarization), 16-26
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
CC 77-3 (Magnetic Phenomena)
Section cross-reference(s): 66

AB Chemical Mech. **Polishing** (**CMP**) has emerged as the premier technique for achieving both local and global planarization. One of the primary concerns in the use of **CMP**, however, is the efficient and complete removal of **CMP** contaminants such as **slurry** and residual hydrocarbons. This paper discusses the removal of silica-based **slurries** utilized for polysilicon and oxide **CMP** processes. The effects of mech. brush cleaning, chemical treatments, and **polish** processes on defect d. for a 16Mb memory technol. are presented. In addition, the chemical compatibility of **polishing slurries** with various brush and **polishing** pad materials is discussed.

ST silicon wafer chem mech **polishing** cleaning
IT Memory devices
(RAM (random access); post-chemical-mech.-**polish** cleaning strategies for silicon wafers)

IT **Polishing**
(chemical-mech.; post-chemical-mech.-**polish** cleaning strategies for silicon wafers)

IT **Surfactants**
(**nonionic**; post-chemical-mech.-**polish** cleaning strategies for silicon wafers)

IT Cleaning
Semiconductor devices
(post-chemical-mech.-**polish** cleaning strategies for silicon wafers)

IT **Abrasives**
(**slurry** removal; post-chemical-mech.-**polish** cleaning strategies for silicon wafers)

IT 7440-21-3, Silicon, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(post-chemical-mech.-**polish** cleaning strategies for silicon wafers)

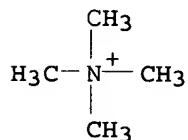
IT 75-59-2, TMAH
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(post-chemical-mech.-polish cleaning strategies for silicon wafers)

IT 7631-86-9, Silica, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(slurry removal; post-chemical-mech.-polish cleaning strategies for silicon wafers)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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(2) Ali, I; Semiconductor Intl 1990, P92 HCAPLUS
(3) Blackwell, R; US 5320706
(4) Bowling, R; J Electrochem Soc 1995, V137, P2208
(5) Cook, L; J Non-Crystalline Solids 1990, V120, P152 HCAPLUS
(6) Huynh; "CMP Clean Process Engineering, CMP Clean Evaluation," Presented at Sematech Surface Prep PTAB Meeting 1993
(7) Huynh, C; 1993 Research/TP Symposium on Silicon Technology 1993
(8) Huynh, C; U S Patent Pending
(9) Iler, R; The chemistry of Silica 1979, P366
(10) Jeon, J; Belgium Semiconductor Symposium 1995
(11) Park, J; Microcontamination Conference 1992
(12) Roy; J Electrochem Soc 1995, V142, P216 HCAPLUS
(13) Singer, P; Wafer Processing News, Semiconductor Intl 1995

IT 75-59-2, TMAH
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(post-chemical-mech.-polish cleaning strategies for silicon wafers)

RN 75-59-2 HCAPLUS
CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



● OH⁻

L39 ANSWER 34 OF 34 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:582574 HCAPLUS
DN 122:320762
ED Entered STN: 02 Jun 1995
TI Synthetic diamond-based polishing suspension for semiconductors
IN Komarov, Vitaly Fedorovich; Sakovich, Gennady Viktorovich; Petrov, Evgeny Anatolievich; Klimov, Anatoly Valentinovich; Kostjukov, Sergei Ivanovich; Baraboshkin, Konstantin Sergeev
PA Nauchno-Proizvodstvennoe Obiedinenie "Altai", Russia
SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DT Patent
LA Russian
IC G09G001-02; C09G001-08

CC 57-6 (Ceramics)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9422970	A1	19941013	WO 1994-RU68	19940401
	W: BY, CA, JP, UA, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	RU 2034889	C1	19950510	RU 1993-12940	19930402
PRAI	RU 1993-12940	A	19930402		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9422970	IC	G09G001-02IC C09G001-08
WO 9422970	ECLA	C09K003/14B

AB The invention concerns a **polishing** compound for giving a superfinish to surfaces, containing 5-10% of an abrasive component suspended and a liquid medium. The abrasive component is a synthetic diamond-containing material with specified properties in which the primary particles are 4-6 nm in size and combine to form aggregates of 20-500 nm in size, with sp. surface areas of 250-450 m²/g and pore volume of 0.6-1.0 cm³/g. A typical **composition** contained the above abrasive material 5-10, glycerol or diethylene glycol 10-15, H₂O₂ 5-15, ethylenediamine 0.1-1.0, and KOH or NaOH 1-3% in H₂O.

ST diamond synthetic **polishing** suspension; glycerol synthetic diamond **polishing** suspension; hydrogen peroxide diamond **polishing** suspension; hydroxide synthetic diamond **polishing** suspension

IT **Polishing** materials
(synthetic diamond-based **polishing** suspension for semiconductors)

IT Petrolatum
Waxes and Waxy substances
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(synthetic diamond-based **polishing** suspension for semiconductors)

IT **Polishing**
(chemical-mech., synthetic diamond-based **polishing** suspension for semiconductors)

IT Alcohols, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(long-chain, ethoxylated, synthetic diamond-based **polishing** suspension for semiconductors)

IT 148-24-3, 8-Hydroxyquinoline, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(saturated aqueous solution; synthetic diamond-based **polishing** suspension for semiconductors)

IT 56-81-5, Glycerol, uses 107-15-3, Ethylenediamine, uses 111-46-6, Diethylene glycol, uses 112-80-1, Oleic acid, uses 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 7631-86-9, Aerosil, uses 7722-84-1, Hydrogen peroxide, uses 9003-11-6, **Ethylene oxide-Propylene oxide** copolymer 11099-07-3, Stearin 12751-48-3, Syntanol 25322-68-3D, Polyethylene glycol, ethers, with fatty alc. 31566-31-1, Glycerol monostearate
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(synthetic diamond-based **polishing** suspension for

semiconductors)
IT 7782-40-3, Diamond, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(synthetic; synthetic diamond-based polishing suspension for
semiconductors)
IT 7631-86-9, Aerosil, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(synthetic diamond-based polishing suspension for
semiconductors)
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

=> SAVE L39 GOU807/A
ANSWER-SET L39 HAS BEEN SAVED AS 'GOU807/A'

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